

NOLOGY DEPT.

Chilton's

MOTOR AGE

AUGUST 1951



In this Issue:

Let's Look at the "Offy"

TOUGH ..

But oh so Gentle



TOUGH ON OIL-PUMPING • GENTLE ON CYLINDER WALLS

● The famous Hastings Steel-Vent is engineered for replacement service and for *all* replacement service. It's the right ring for every re-bore, re-ring and re-sleeve job.

Hundreds of fleet maintenance men specify Steel-Vent exclusively. Thousands of garages and repair shops install Steel-Vent for every job. Millions of

car, truck and tractor owners know Hastings Steel-Vent is tough on oil pumping, gentle on cylinder walls.

Whatever the engine condition, whatever the operating condition, Hastings gives you the right ring combination built around the famous Steel-Vent.

HASTINGS MANUFACTURING CO. • HASTINGS, MICHIGAN
PISTON RINGS • SPARK PLUGS • OIL FILTERS • CASITE • DROUGHT

HASTINGS

THE RIGHT COMBINATION FOR
EVERY ENGINE CONDITION



Steel-Vent Set—the famous Tough-but-oh-so-Gentle steel oil control ring in a Motor Engineered Set, priced no higher than ordinary ring sets.



Hastings 2C Set—With chrome on the two oil control rings, the Steel-Vent and the Hastings Chromilube (an auxiliary type oil-compression ring for the second groove).



Hastings 3C Set—A complete chrome set-up with Chromilube Chrome-Faced Steel-Vent and Chrome-Test top compression ring, for extreme operating conditions.

IT'S FORM-A-GASKET

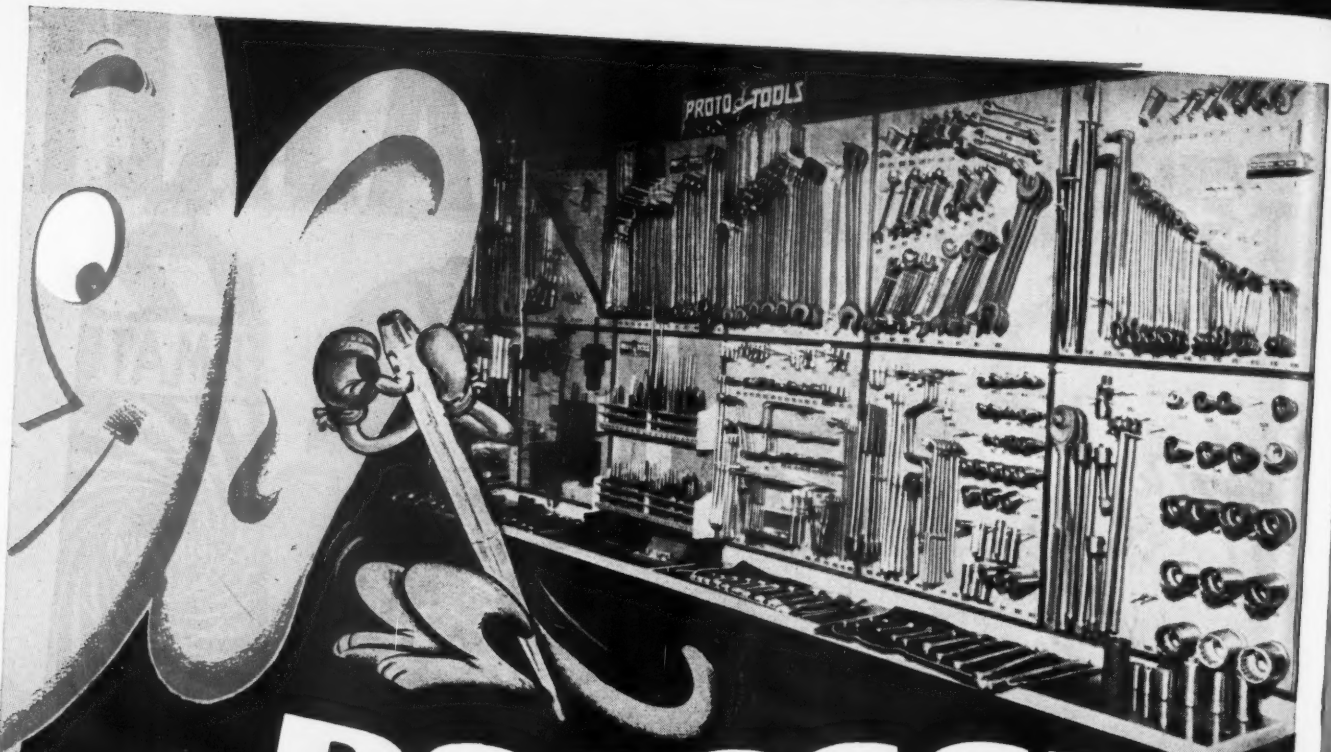
For Seal-Ability

- Form-A-Gasket No. 1,
Fast Drying Paste ... Hard Setting
- Form-A-Gasket No. 2,
Non-Hardening Paste ... Stays Pliable
- Aviation Form-A-Gasket No. 3,
Brushable ... Remains Tacky

**If It's Assembled
With Form-A-Gasket,
It's Leakproof!**



PERMATEX COMPANY, INC., BROOKLYN 35, N. Y.



PSSSSST!

PROTO means PROfessional TOOLS!

TOOLAGRAM



Redesigned PROTO open end wrenches have narrower jaws, more compact heads, stronger design, less jaw overhang, smoother shanks, clearer size markings, better finish. Box wrenches have more comfortable shanks, brighter heads, engineered lengths. Combination wrenches have all open end and box wrench improvements.

Our little puncharoo is spreading the good word that PROTO tools are designed and manufactured for men who earn their living with tools. Most professionals already know that tools in the big PROTO line have field-tested designs, are accurately made from special alloy steels and are scientifically heat treated. As a result, they fit right, handle easily, stand hard work and last many extra years! It will pay you to buy truly professional tools—from your PROTO dealer. Send 10¢ for 68-page catalog to

PLUMB TOOL COMPANY

2226F Santa Fe Ave., Los Angeles 54, Calif.



Chilton's MOTOR AGE

WITH WHICH IS COMBINED AUTOMOBILE TRADE JOURNAL

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For THE AUTOMOTIVE SERVICE INDUSTRY

Vol. LXX, No. 9

August, 1951

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Heavy-duty or Premium? New Sunoco Dynalube is BOTH!

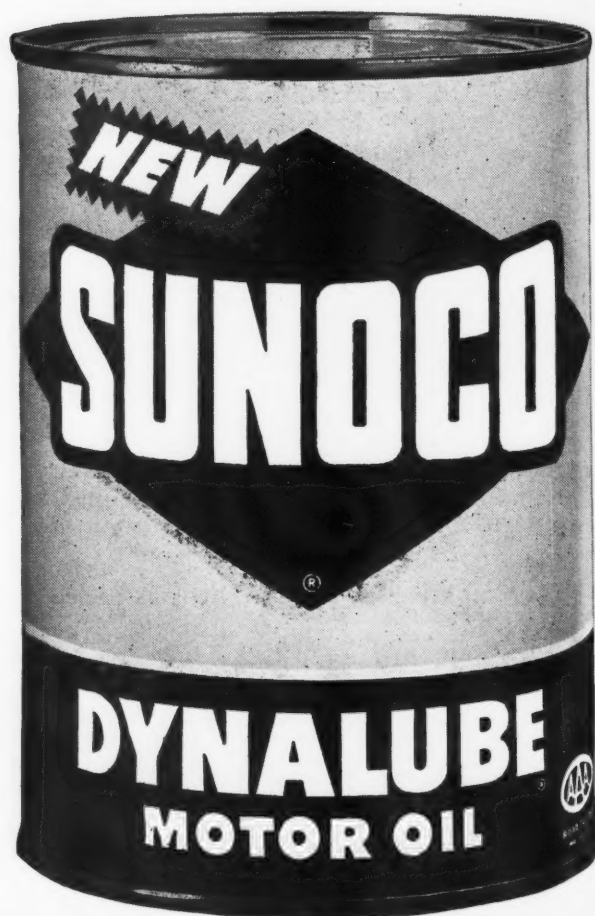
Dynalube is One of the Very Few Motor Oils that meets or exceeds the Recommendations of All Car Manufacturers

Here's a great new motor oil that actually does the work of two different types of oils ... because NEW Dynalube is *both* heavy-duty and premium *in a single motor oil!*

Now, regardless of car manual recommendations, you no longer need to stock both "premium" and "heavy-duty" motor oils ... Sunoco Dynalube meets *both* requirements in *one* oil. You save money, time and space, reduce inventory ... simply by stocking NEW Sunoco Dynalube ... and it costs no more than many oils that give a lot less!

Memo to CAR DEALERS

To insure better satisfied customers and longer-lasting engine efficiency in every new car you sell, recommend use of NEW Sunoco Dynalube Motor Oil exclusively.



FRONT The Wall Chart to End All Wall Charts...

COMBINATION
CATALOG AND
WALL CHART

KIT NUMBERS
EASY TO READ

EXPLODED
GROUPS
ON ALL CARS

HELPS SELL
THE CAR OWNER
TOO

SIZE 41" x 43"

Now Available Through Your Closest Moog Distributor

The wheel alignment specialist and the mechanic working on front end replacements will welcome this new Moog Coil Action Wall Chart, with easy-to-find part locations shown with exploded groups of all popular installations and required King Bolt Kit included.

Makes service sure and fast! All parts numbers plainly marked — a service-order chart that will help you get the right part for the job.

MOOG INDUSTRIES CO.
ST. LOUIS 14, MO.

Divisions:
MOOG COIL ACTION PARTS CO.
MOOG PISTON RING COMPANY
ST. LOUIS SPRING COMPANY

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SELF-CONTROL STARTS HERE



AND TO RESTORE
ENGINE PERFORMANCE

OIL-CONTROL STARTS HERE

To stop oil-pumping, replace worn
engine bearings

A roving eye can lead to trouble—so can worn engine bearings!

Worn connecting rod and main bearings cause oil pumping. Excess oil reaches combustion chambers, burns to performance-stealing carbon on spark plugs, valves, pistons and rings.

Worn bearings are a *major cause* of oil

pumping! Give new piston rings a chance to do their own job—replace worn bearings at the same time. Use Genuine Federal-Mogul Bearings, *engineered* for the job of oil-control. They restore engine performance and owner satisfaction!

FEDERAL-MOGUL SERVICE

(Division of Federal-Mogul Corporation)

DETROIT 13, MICHIGAN



control oil-pumping where it starts—REPLACE WITH

FEDERAL-MOGUL



BEARINGS



For peak performance in any weather

MOPAR THERMOSTATS AND RADIATOR HOSE

Genuine Chrysler Corporation Parts

ONE-PIECE BELLOWS. MoPar Thermostats have seamless, one-piece bellows for greater strength and more all-weather dependability. You're always sure of utmost satisfaction. That's because MoPar thermostats are the *same as original equipment* in Plymouth, Dodge, De Soto and Chrysler cars and in Dodge "Job-Rated" trucks.

HIGH TENSILE STRENGTH. MoPar Radiator Hose is strong, flexible, easy to install. Not affected by temperature changes! Neoprene lining can't crack or flake—resists action of foreign matter in cooling system. Three plies of tough fabric assure longer life. Engineered especially for Plymouth, Dodge, De Soto and Chrysler cars and Dodge "Job-Rated" trucks.

MoPar parts are available from Plymouth, Dodge,
De Soto and Chrysler dealers everywhere.

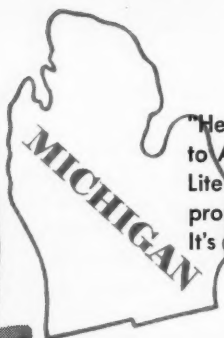


CHRYSLER MOTORS PARTS CORPORATION, DETROIT, MICHIGAN



FROM BORDER TO BORDER JOBBERS ARE SAYING:

"When you add the total score"

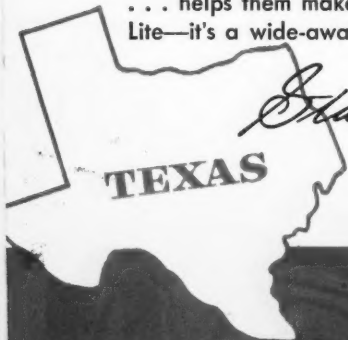


"Here in Lansing we've closely watched the swing to Auto-Lite and its famous spark plug line. Auto-Lite has consistently offered my dealers more in promotion, more in new and better sales leaders. It's by far the most active line on the market."

Ed Phillips

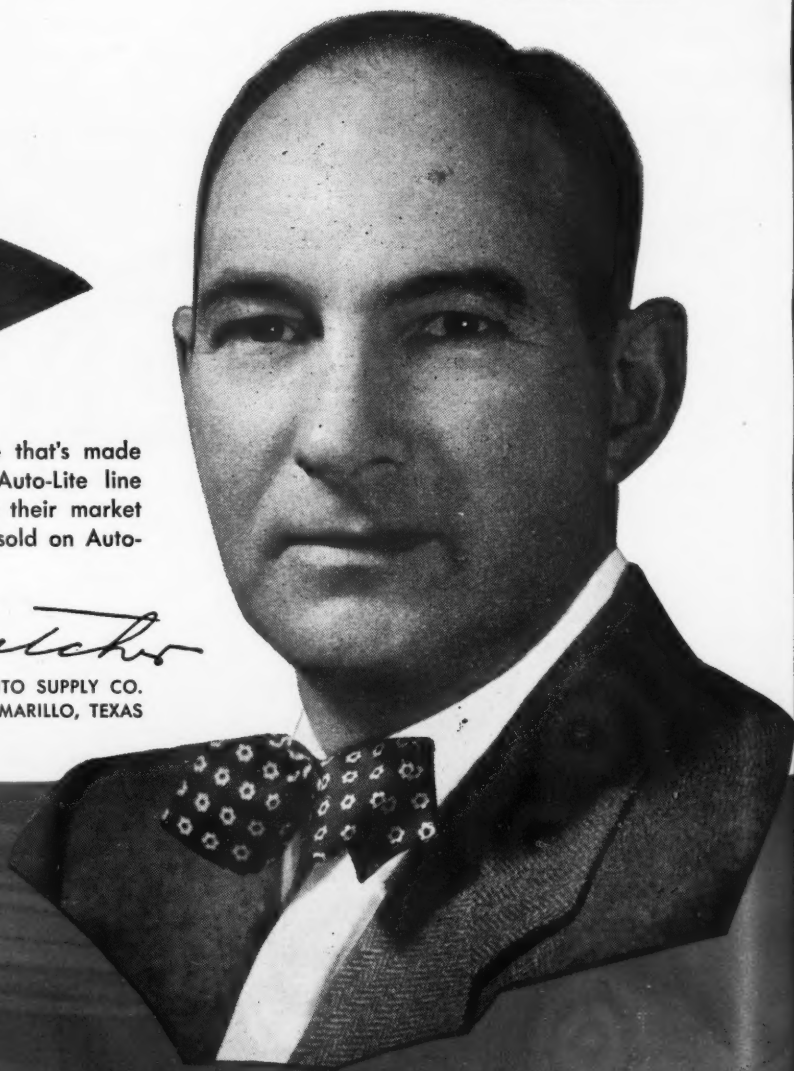
PRESIDENT
PAUL AUTOMOTIVE
LANSING, MICHIGAN

"Can't say I've ever seen a spark plug line that's made strides like Auto-Lite. My dealers like the Auto-Lite line because it gives them complete coverage of their market . . . helps them make more profit. I'm 100% sold on Auto-Lite—it's a wide-awake line."



Stanley Fletcher

MCDONALD AUTO SUPPLY CO.
AMARILLO, TEXAS



AMERICAN MOTOR PARTS CORPORATION DETROIT MICHIGAN

AUTO-LITE *is the line*

...because Auto-Lite gives you the only complete line of spark plugs for maximum sales! "

Plus the best advertised name in the automotive aftermarket—sensational, big-time radio and television "Suspense!" shows—colorful national ads in America's leading publications—exclusive AAA tie-in—coast to coast highway signs—a big, ready-made market of Auto-Lite equipped cars—sure-fire promotion and tie-in material—everything needed to draw new customers in and make 'em buy.

You'll find it pays to be an Auto-Lite Registered Service Dealer (RSD) . . . pays in sales . . . in volume . . . in maximum profit. For only Auto-Lite can give you a complete spark plug line—the Standard Spark Plug, ignition engineered by ignition engineers to give unbeatable performance . . . the Transport Spark Plug for lowest

cost per mile of spark plug operation in heavy-duty service . . . the new Auto-Lite Resistor Spark Plug with new advantages. Capitalize on this money-saving, profit-making spark plug deal that only Auto-Lite offers. Get full details from your jobber or write to



THE ELECTRIC AUTO-LITE COMPANY

Toledo 1, Ohio

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Toronto, Ontario

Tune in "Suspense" . . . CBS Television Tuesdays

AUTO-LITE SPARK PLUGS

Auto-Lite Spark Plugs—Patented U.S.A.



RESISTOR

STANDARD

TRANSPORT

All 3 have been selected by leading automotive engineers as original factory equipment on millions of America's finest cars, trucks and tractors.

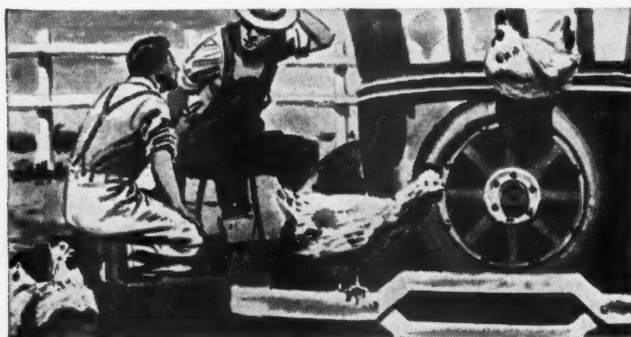
"Good Community Relations—Good Customer Relations *Spell Good Business*" Says Erik



Reading time: 1 minute, 39 seconds

"When my brothers and I set out to build an automobile business," Erik Simmons relates, "we recognized that success depended on serving our community in the best way possible. Therefore, we took an active part in our town's life, sold only the best cars, and built a wide circle of loyal friends."

Erik started his automotive career in a small mid-western city in 1916, joining with his two brothers in organizing a repair shop in a small building formerly occupied by a tailor. Erik, an expert mechanic, handled the repair department and also assisted his brothers in selling two of the leading makes of cars at that time. "It wasn't unusual to drive thirty miles over rutted roads to see a prospect," Erik recalls, "and we'd make our pitch in a farmer's backyard with chickens and ducks roosting on the bumper and running board. We took anything for



trades—farm machinery, horses and even cows." The business prospered as the friendly, honest dealings of the brothers gained attention throughout the country.

Because Erik believed a salesman served his customer better by knowing everything about his product, he took a special course for automotive mechanics. "The technical facts I learned," Erik says, "have helped my selling countless ways. For instance, I even sold a fire engine because I knew the answers. And, my practical experience taught me how valuable good community relations can be. In fact, I went out of my way to replace the horse-drawn engine in my home town. It was good business," he emphasizes. "Every time my new-fangled fire wagon screeched through town, someone was sure to say, 'There goes that new fire truck Erik built.'"

His wide acquaintance among car owners, a reputation for honesty and his position in the community, were so out-



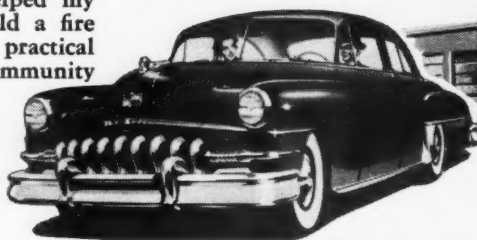
standing they won him a De Soto dealership when an opening occurred.

Erik gets into community activities at every opportunity. He has local police officers participate in a "Safety Through Courtesy" program. The officers nominate courtesy drivers, then Erik presents the drivers with \$5.00 bills.



Today Erik is proud of the thriving dealership he has established. His modern plant includes spacious showroom, large service department, and an active used car lot. He is so sold on the opportunities in the automobile business that he has brought his college-trained son into active management. "And," Erik emphasizes, "he's carrying on the tradition of good community relations, good customer relations, and a top-notch product to sell. You can't miss with that combination!"

Write for our free booklet containing a number of these stories of accomplishments by enterprising men. Chrysler Corporation, 341 Massachusetts Ave., Highland Park 3, Mich.



Chrysler Corporation

PLYMOUTH • DODGE • DE SOTO • CHRYSLER • DODGE "Job-Rated" TRUCKS
Fine Cars of Great Value

At a time like this...



your customers need

BALANCED BRAKES



Only **Grey-Rock** makes
BALANCED BRAKSET LININGS



GREY-ROCK DIVISION of Raybestos-Manhattan, Inc., MANHEIM, PA.

RAYBESTOS-MANHATTAN, INC., Manufacturers of Brake Linings • Brake Blocks • Clutch Facings
Fan Belts • Radiator Hose • Packings • Mechanical Rubber Products • Rubber Covered Equipment
Asbestos Textiles • Powdered Metal Products • Abrasive and Diamond Wheels • Bowling Balls



Brakes *must* be ready for any emergency! And dependable brake action demands balanced linings!

Why? Different shoes, even in the same brake, do different work, need different kinds of linings. Grey-Rock gives you balanced combinations to provide smoother, *safer* stops . . . with equal wear on all shoes, hence greater mileage.

In addition, Grey-Rock Balanced Linings eliminate dive, grab, hard pedal, and other brake troubles. For better and more profitable brake jobs, order Grey-Rock Balanced Braksets from your jobber. Ask him, too, about Grey-Rock's business-building promotional plans.

Consistently advertised in
POST and **Country Gentleman**





A CARTOON FROM THE SATURDAY EVENING POST.

“This route cuts out all of that—I QUOTE—Labor Day traffic”

Labor Day, and every big-traffic day, means transient sales—extra sales that every dealer welcomes.

Of course, the surest way to make more transient sales, faster—and the surest way to make repeat sales—is by featuring nationally advertised, Post-advertised lines. Car owners from coast to coast know them . . . want them . . . look for them.

Make sure that you get your share of extra sales this fall. Stock and feature Post-advertised lines. *They sell fastest* because the Post carries more automotive advertising to more people than any other magazine in the world.



**-gets to the
heart of America**

Tell your customers—

HARRISON THERMOSTATS

are vital to
the overall efficiency
of the engine
cooling system



HARRISON THERMOSTATS
A UNITED MOTORS LINE
Available Everywhere Through
UNITED MOTORS DISTRIBUTORS

For long engine life, automatic control of engine temperature is absolutely necessary, summer and winter.

It is the function of a thermostat to effect such control.

How successfully Harrison thermostats have performed this function over the years is attested by the fact that they are now standard equipment on more cars and trucks than any other make—and that they have become a leading shelf item for dealers.

The demand for Harrison thermostats is continuous . . . Harrison thermostats are available through wholesalers who in turn are served by 20 United Motors Service zone warehouses strategically located in all parts of the United States.

For complete information, call your nearest United Motors distributor.

HARRISON

HARRISON RADIATOR DIVISION
GENERAL MOTORS CORPORATION, LOCKPORT, NEW YORK

bring your up-to-date...enjoy its

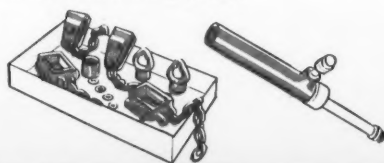
Here's what the new Bantam "Shorty" does!

Now you can put Bantam "Porto-Power" to work where it's impossible to use hammers, pry bars or dollies! This new 2-ton ram slips into spots having only $\frac{4}{8}$ " clearance. It even has a $1\frac{3}{8}$ " screw extension — to make the most of its 3" push. Use it with your regular Bantam hose and pump. Ask for No. RC-618.



Here's the way to pull and stretch metal!

Pull in door posts — line up new panels — pull out light frame members — stretch and straighten fenders, panels, hoods, cowls, braces, etc. Do it all with this new Bantam "Pull-Pak" kit. Specialized clamps and chains anchor the new Pull Ram. Faster, better than any other equipment. Ask for Kit SB-46.



New developments like this keep "Porto-Power" years ahead!

Here's dramatic proof of why it's so *extremely important* to choose "Porto-Power" for your body work! It's the only line that keeps you consistently *up-to-date!* Since 1935, *Blackhawk and only Blackhawk* — has demonstrated a policy of **CONSTANTLY** *creating* new hydraulic wonder-workers such as those pictured here. And, these and other developments are vital to profitably cure headaches caused for you by new car designs.



only **BLACKHAWK** makes

Porto-Power®

FULL profit power!

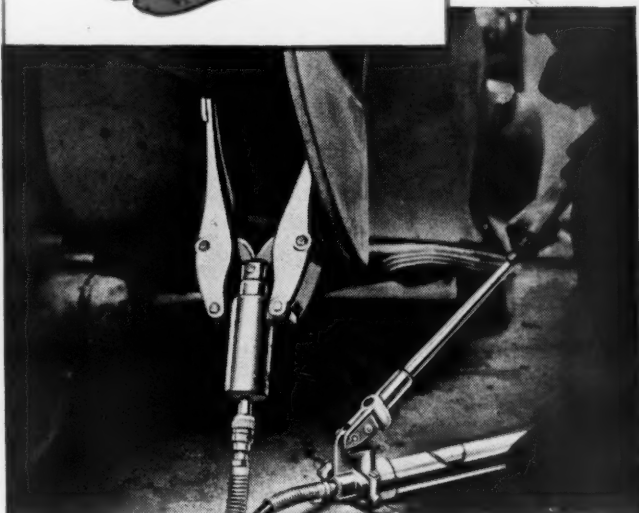
For a good pry — stick this nose into the job!

Boost profits on reconditioning and re-building with "Spred-Ram"! Reach into narrow, deep openings and spread up to 11¾" with tremendous hydraulic power. Bring out crushed, deep fenders — pry smashed bodies away from frames. Ask for No. SA-7. The Bantam or regular "Porto-Power" pump serves its built-in ram.



Convert your Wedgie into a hydraulic "pick"

Now you can actually concentrate hydraulic power on a *pin-point*—to remove small dents, kinks, and creases. And it's done even where a hammer can't be used. Simply thread any one of these 4 "pick-ups" into your Wedgie. Ask for the low-cost SB-47 Kit of Wedgie "pick-ups."



**more true today than ever:
there's no substitute for "Porto-Power"**

Body shop business is *greater*! And new cars, replacement body sections and body experts are sure to be *scarce*! That's why you need the *best* body shop equipment . . . why the great "Porto-Power" superiority is so important to your income. See your jobber for "Porto-Power" . . . the exclusive (trademark registered) product of Blackhawk Mfg. Co., Dept. P681, Milwaukee 1, Wisconsin.

Porto-Power®

Two Important Tips for "Porto-Power" Owners

You owe it to yourself to get facts on ALL of the *many* recent "Porto-Power" developments. Do it one of two ways:

1. Check the latest "Porto-Power" catalog. Your Blackhawk Jobber salesman carries it!
2. Visit your jobber—see this handy display (left)! It's near his counter — to help you choose what you need — to bring your "Porto-Power" up to full profit power!



Developed by Johns-Manville **FLEET TESTED asbestos**

has set outstanding service records on taxicabs and commercial vehicles

THE development of Fleet Tested sets is another case in point where Johns-Manville's extensive research facilities have met the needs of the automotive industry for a specific friction product—a product which would solve a costly, troublesome problem for taxicab and commercial vehicle operators.

Fleet owners have stated, again and again, on the basis of actual mileage records, that J-M Fleet Tested Sets are the best linings ever developed for the hard, rugged daily wear, and the constant stop-and-go driving required of taxicabs and commercial vehicles.

J-M FLEET TESTED SETS—with their scientifically developed frictional characteristics—brought to fleet owners across the country a premium lining capable of giving thousands of extra miles of trouble-free life and wear. As a result, after extensive tests on one or two vehicles, whole fleets have been converted to J-M Fleet Tested Sets!

This reputation for quality and everyday dependability *plus* Johns-Manville's ability to successfully meet the ever changing needs of the automotive industry for new and better friction materials... is the kind of product reputation that keeps your customers sold on the Johns-Manville line and brings them back time after time!

—A complete and profitable line of J-M
automotive brake and clutch friction materials

Wherever dealers and distributors find a need for a quality line of friction materials, they also find that the *complete* Johns-Manville line of automotive brake and clutch friction materials meets the need—a line that builds volume and satisfied customers.

—Johns-Manville provides you with a complete
BRAKE SHOE EXCHANGE SERVICE with depots
strategically located across the country

Now Johns-Manville offers you its new, expanded brake shoe service . . . providing even greater opportunities to jobbers and their dealers for building new sales outlets and greater profits! This new service gives you a dependable source of rebuilt and relined brake shoes, enabling you to offer fast efficient service without the necessity of carrying large inventories.

With this efficient brake service, you are equipped to supply your customers with the best of materials applied by skilled mechanics under careful inspection and ideal factory conditions. This new J-M service is fast, economical, and insures top quality relining with both riveted and bonded-on linings.

—Intensive, nationwide customer promotion campaigns
support your selling efforts . . . week after week!

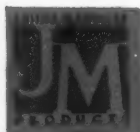
These are the times when dependability of your source of supply really counts! It will pay you to look into the Johns-Manville Franchise to see how many advantages it offers. Write today for full details. Address Johns-Manville, Box 290, New York 16, New York.

J-M 4 STAR SETS

"Custom made" for all popular passenger cars. Proved in the laboratory and on the road. Balanced friction to match action and drum material . . . for safer, smoother stops.

J-M CLUTCH FACINGS

A complete line of smooth-acting, long-wearing facings for every type of service . . . precision-molded, resin-bonded J-M STM Facings; "cushion"-action J-M Spiral Wound Facings; hard, dense J-M Molded Facings.



Johns-Manville *asbestos*

Research... brake lining



J-M WIREKLAD

Reinforced with a revolutionary new flexible metal fabric, "WireKlad" sets the highest standards of performance for this type friction material—better conformability, high rivet-holding strength, excellent bonding characteristics, less distortion in "hot" service.

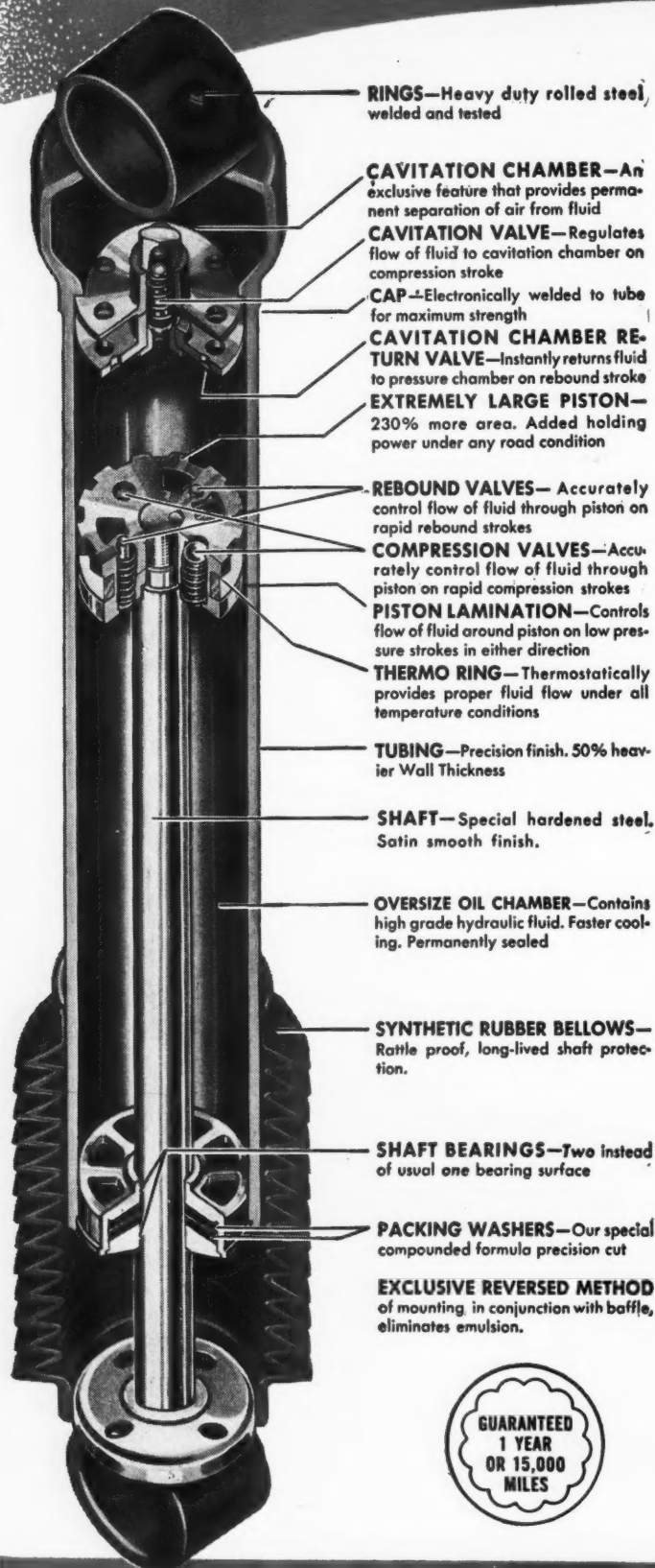
J-M BRAKE BLOCKS

For heavy duty trucks, trailers and buses. Exceptionally high heat-resistance, built in. Available for high, medium, or low friction service. Molded to fit standard brake shoes.

The Johns-Manville Research Center at Manville, N. J., the world's largest laboratory devoted to asbestos products. Year-in-and-year-out research has produced many famous Johns-Manville automotive "firsts"... your best assurance that the Johns-Manville friction material line will continue to stay out in front in quality and performance.

FRICTION MATERIALS

NOT ONLY 1... BUT **17** SUPERIOR FEATURES



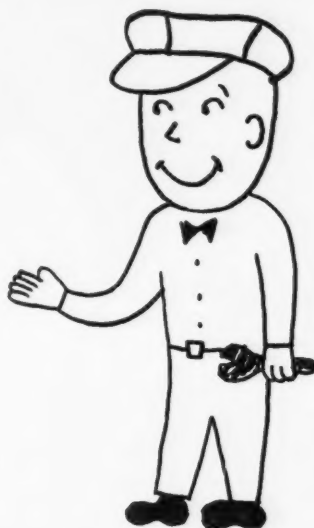
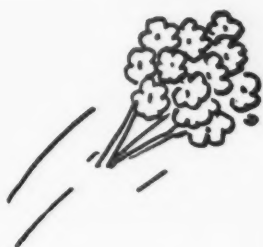
IN THE *New*
COLUMBUS
Luxury-ride SHOCK ABSORBER

LICENSED BY DE CARBON

- ✓ The Columbus Shock Absorber is the only completely different shock absorber on the market.
- ✓ It carries a longer guarantee and is built to outlast the car by one of the nation's most highly respected producers of precision products.
- ✓ Exhaustive tests prove it will outperform all conventional types.
- ✓ One competitively priced model serves both standard and heavy duty service requirements.
- ✓ Approximately 50% less inventory is required for full coverage.
- ✓ No modification is required when replacing other makes of direct action shock absorbers.



Manufactured by Heckethorn Mfg. & Supply Co., LITTLETON, COLORADO

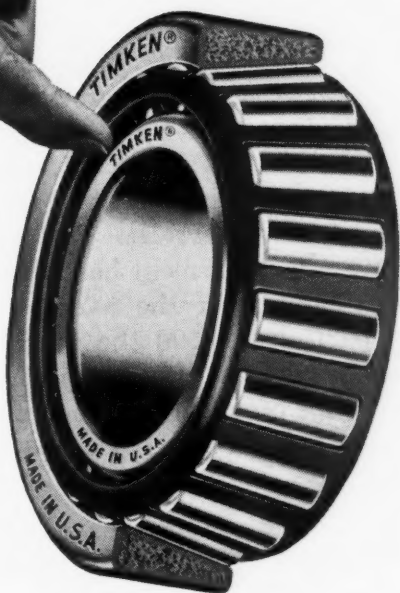


Want customers tossing bouquets your way?

If you want your reputation for top service to blossom, let your customers know that the replacement parts you use are the best you can buy. Every time you replace a

tapered roller bearing, point out the trademark "Timken" on the replacement. That way your customers are sure to know they are getting the finest in quality.

Just tell 'em it's "TIMKEN®"



TIMKEN® bearings are the number one choice of automobile manufacturers for original equipment. That's because *only* Timken bearings give you (1) advanced design, (2) special analysis steels, (3) precision manufacture, (4) complete quality control. Check for the trademark "Timken" on every tapered roller bearing you install. And remember to show it to your customers, too!

FREE BOOKLET! Write today for your copy of "Timken Tapered Roller Bearings, Their Care and Maintenance". Dept. AM-8, The Timken Roller Bearing Company, Canton 6, Ohio. Cable address: "TIMROSCO".

TIMKEN

TRADE-MARK REG. U. S. PAT. OFF.

TAPERED ROLLER BEARINGS

NOT JUST A BALL NOT JUST A ROLLER THE TIMKEN TAPERED ROLLER BEARING TAKES RADIAL AND THRUST LOADS OR ANY COMBINATION

AC

OIL FILTERS

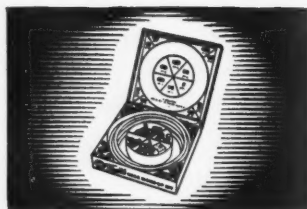


AC Aluvac Oil Filter Element

FASTEST GROWING OIL FILTER LINE . . .

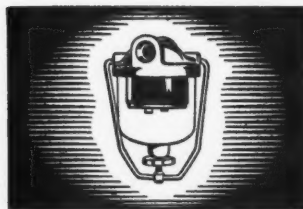
AC Aluvac—the fastest growing oil filter line in the industry—is standard equipment on Buick “Fireball” engines; and optional, factory-installed equipment on Oldsmobile, Cadillac, and Chevrolet. The sensational new AC Aluvac Element has twice the dirt catching ability of the average element, traps particles 1/100 the diameter of a human hair. AC Aluvac Elements are now available for practically all makes of filters.

AC SPARK PLUG DIVISION • GENERAL MOTORS CORPORATION



AC FLEXIBLE GAS AND OIL LINES MAKE-UP KIT

Also complete assemblies with Wall Merchandiser that stocks and displays.



AC GASOLINE STRAINERS AND ELEMENTS

Available in handsome Counter Merchandiser for attractive display and easier sales.



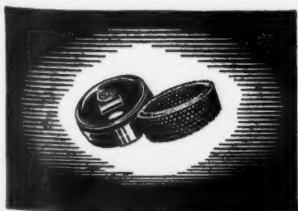
AMERICA'S FIRST AND FINEST...

AC developed the fuel pump in 1927, and has built more than 100,000,000. Over 90% of all automotive vehicles were factory-equipped with AC's . . . and over 40,000,000 are in use. These facts, plus the fact that AC is still the finest fuel pump, make replacement sales easy. Up your fuel pump profits with the Leader—easy-to-sell AC's!



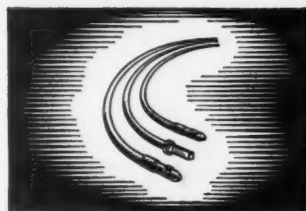
ORIGINAL EQUIPMENT LEADERSHIP...

Nearly half of all new American cars and trucks are factory-equipped with AC Spark Plugs with patented CORALOX Insulator. There are types available for *all* vehicles. CORALOX . . . the patented AC Insulator, keeps plugs cleaner, makes them surer firing, gives them longer life.



AC AIR CLEANERS AND ELEMENTS

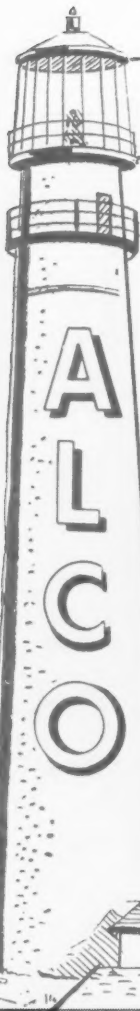
Heavy-duty cleaners; renewal elements. AC's used as equipment by 80% of car manufacturers.



AC SPEEDOMETER CABLE-CASING ASSEMBLIES

Also supplied in tailor-made cables, or as bulk cable and casing, with parts.

BIG PROFITS IN TURN SIGNALS!



Feature the New
ALCO TURN SIGNAL
CONVERSION KIT
with the Automatic
SELF-CANCELLING SWITCH
FOR FRONT AND REAR LIGHTS

ADDS DIRECTIONAL SIGNALS TO PRESENT FRONT AND REAR LIGHTS

Quick and simple to install. No holes to drill. Socket conversion units are exact duplicates of manufacturer's standard equipment. Colored connecting wires with snap-in tips assure easy identification. ALCO's self-cancelling switch automatically cuts off the signal after the turn has been made. Can also be operated manually.

CUSTOM BUILT TO FIT MOST POPULAR CARS

Each KIT contains:

AUTOMATIC SELF-CANCELLING SWITCH,
SOCKETS, BULBS, FLASHER, INLINE FUSE,
ALL NECESSARY WIRING

STATE APPROVED

STANDARD SWITCH of baked enamel on die cast body with chrome handle.

DE LUXE SWITCH highly polished all chrome.

ALCO DIVISION OF

AUTO LAMP Manufacturing Co.

2909 Indiana Ave., Chicago 16, Ill.

SOLD ONLY THROUGH AUTHORIZED JOBBERS



DeVILBISS



HERE'S THE TREND TO WATCH

Today's cars are beauties—and motorists are spending more and more money to keep them that way. Today mashed fenders and wreck jobs account for your biggest job tickets. And DeVilbiss products—Spray Booths, Air Compressors, Spray Guns and Hose will make these same jobs your profit leaders.



YOUR CAR APPEARANCE SERVICE PROGRAM STARTS HERE

See the two DeVilbiss Spray Booths above? They are part of this shop's DeVilbiss-equipped paint department, and play a major role in its profitable, planned "appearance service" program for customers.

Leading refinishers throughout the country, like this one, find that appearance services account for *one third* or more of service department volume.

Their two fully equipped DeVilbiss Spray Booths profitably handle from 10-15 complete paint jobs and touch-ups daily. Turn out factory-quality, customer-pleasing refinishes every time, too.

Is there a thought here for you? Consider the fact that appearance service is becoming one of the profit leaders in the trade besides being a steady year-round service that's

here to stay, and you'll see why so many shops are expanding with DeVilbiss equipment.

For complete data on DeVilbiss products—Spray Equipment, Air Compressors, Exhaust Systems and Hose, contact your local DeVilbiss distributor or Branch Office. They're always at your service.

THE DEVILBISS COMPANY Toledo, Ohio

Windsor, Ontario • London, England
Santa Clara, Calif.

Branch Offices in Principal Cities



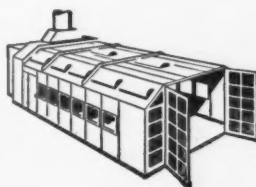
Air Compressors



Hose and Connections



Spray Guns



Spray Booths

FOR BETTER SERVICE, BUY

DeVILBISS



Neglected Wires do cause FIRES ...lots of them!

Every day, hundreds of papers all over the country headline fires that destroyed cars, trucks, or buses *because of defective wires!*

The Fire Report for the City of Philadelphia shows that the "chief known cause of fires in 1950" was automobile short circuits.

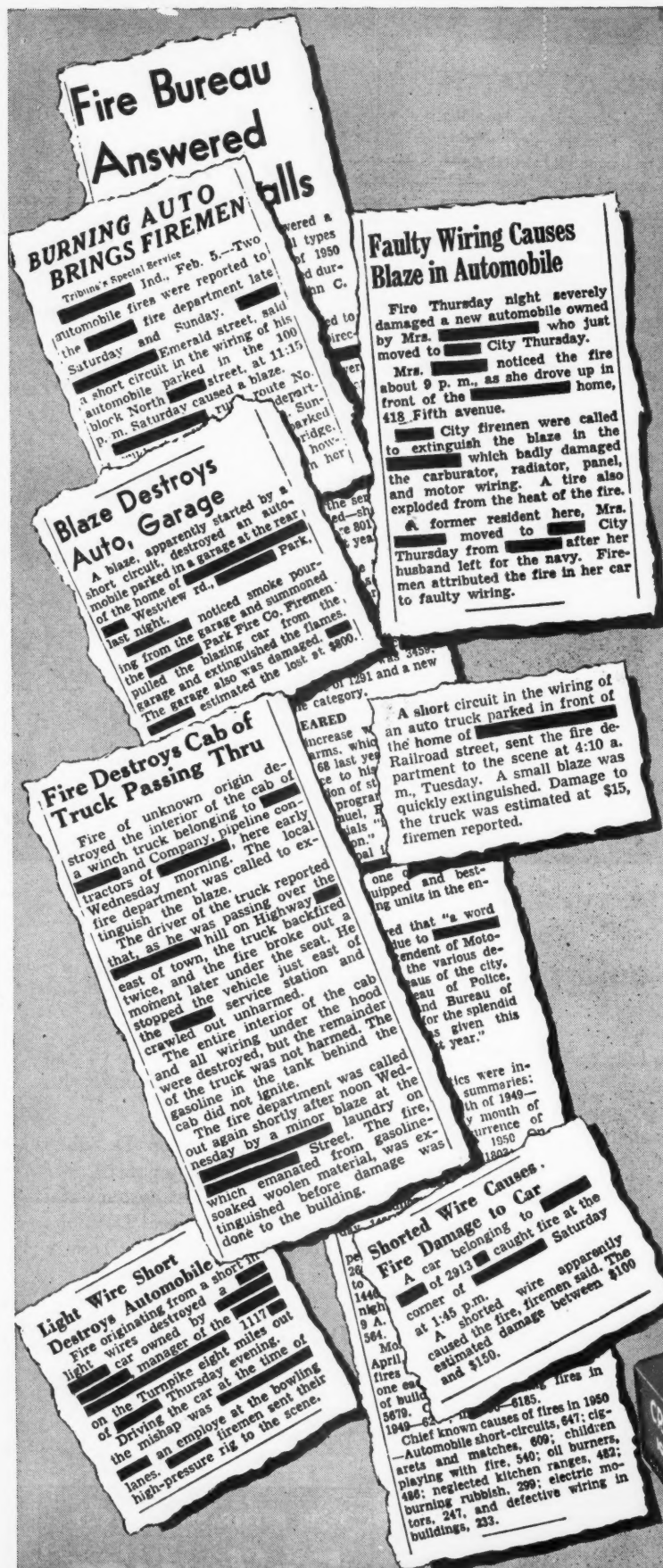
When you finance a car, you can't drive it away until it has been protected by fire insurance!

Defective wires are the worst fire hazard in motor vehicles. So, check the wire on *every* job! Replace dangerous wiring with genuine Crescent Wiry Joe ignition wires and battery cables. They eliminate fire hazards . . . improve engine performance in the bargain.



THE CRESCENT COMPANY, INC., Pawtucket, R. I.

Check the wire and cable on every car!





ECONOMICAL TRAVEL IN 1875!

The "Cynophere" was invented by M. Huret
of Paris, France, and was patented
in the United States, December 14, 1875.

Two dogs running on treadmills within
the rear wheels supplied the power,
while all the driver had to do
was steer and lookout for cats.

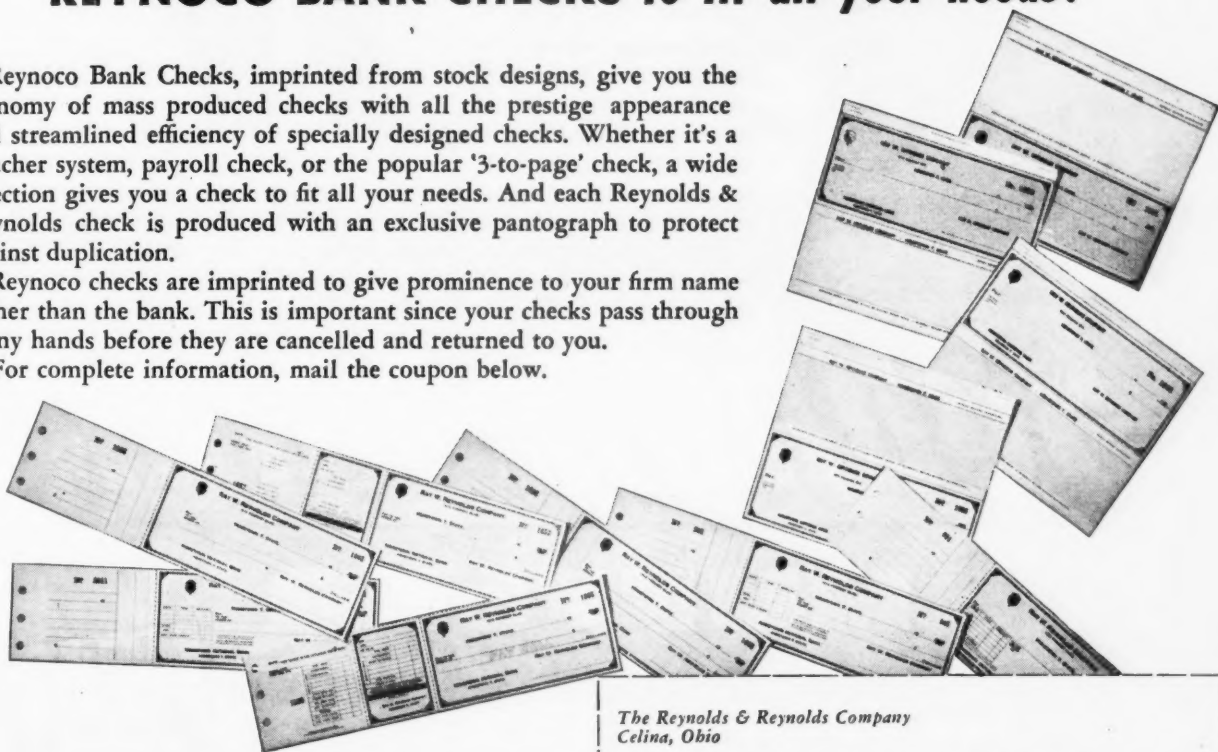
—from Floyd Clymer's Historical Motor Scrapbooks

NOW... Reynolds & Reynolds offers economical REYNOCO BANK CHECKS to fit all your needs!

Reynoco Bank Checks, imprinted from stock designs, give you the economy of mass produced checks with all the prestige appearance and streamlined efficiency of specially designed checks. Whether it's a voucher system, payroll check, or the popular '3-to-page' check, a wide selection gives you a check to fit all your needs. And each Reynolds & Reynolds check is produced with an exclusive pantograph to protect against duplication.

Reynoco checks are imprinted to give prominence to your firm name rather than the bank. This is important since your checks pass through many hands before they are cancelled and returned to you.

For complete information, mail the coupon below.



... one of the several hundred
sales aids and operating systems
that build and protect your profits,
produced by Reynolds & Reynolds



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CELINA, OHIO

OFFICES IN PRINCIPAL CITIES

WESTERN BRANCH: 3044 RIVERSIDE DRIVE, LOS ANGELES

The Reynolds & Reynolds Company
Celina, Ohio

Please send me information on "Reynoco Bank Checks."

Name

Firm Name

Address

City State

WHEN THE
MUFFLER GOES **BAD**

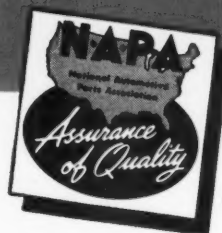


MAKE SURE THE
REPLACEMENT IS **GOOD**



INSTALL A
Soundmaster
MUFFLER

● One mark of a first-quality muffler is accurate fit. Another is long, safe, quiet performance. In Soundmaster Mufflers, you get *both* on every replacement. Each Soundmaster is engineered for FIT—*Fast Installation Time*—on each particular car. And Soundmaster's strict adherence to rigid standards of endurance, noise control and low back pressure insure utmost performance and safety in service. Ask your NAPA Jobber for the muffler that fits right and performs right . . . Soundmaster!



DE KOVEN MANUFACTURING COMPANY • RACINE, WISCONSIN

Where Quality Counts...

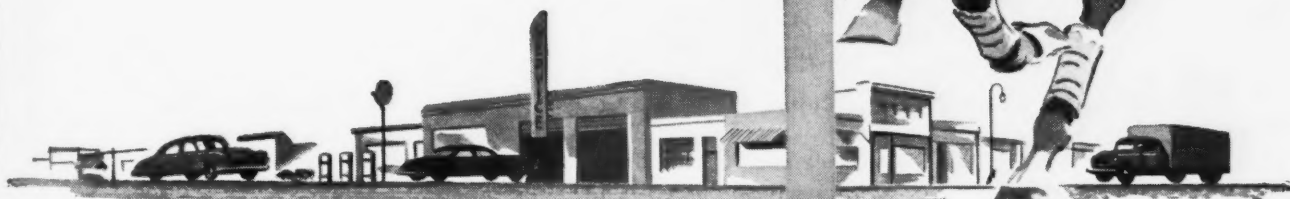
use **PACKARD** **LOW TENSION CABLE** with **"249 Compound"**

What a wonderful difference! Packard low tension cable with amazing "249 compound" insulation lasts longer and delivers superior performance, too.

Packard's "249 compound" insulation will not crack or harden. It has exceptional resistance to heat, chemicals, oils and abrasion. And "249 compound" will not support combustion.

By every test in the laboratory—by the test of long, hard use—Packard low tension cable gives better, longer, more trouble-free service. What's more, Packard automotive cable is used as original equipment on more cars, trucks and buses than any other make.

Yes, where quality counts, use the cable that sets the standard of the industry—Packard low tension cable.



Packard

REG. U.S. PAT. OFF.
TRADE MARK

Packard Electric Division, General Motors Corporation
Warren, Ohio

**FOREMOST BUILDER OF
AUTOMOTIVE AND AVIATION WIRING**

PACKARD PETE SAYS—

Standardize on nationally known and widely distributed Packard automotive cables. Packard supplies highest quality cable for all requirements—low tension cable ... 440 and Lac-Kard high tension cable ... battery cables with your choice of the LeadAlloy terminal or the leaded brass terminal.



Mrs. Customer: And you say that this upholstery is *genuine leather*:

Mr. Salesman: Indeed it is. All our convertibles are upholstered in genuine leather, as standard practice, and at no extra cost to you.

Mr. Customer: That sounds like extra value to me, for I know leather has no equal for lasting quality.

Mr. Salesman: In fact, with normal wear and simple care, it actually improves with use. Makes your car a better value when you trade it in.

Mrs. Customer: And I won't need to bother getting slip-covers fitted. That's a saving, too. Besides, I couldn't bear to hide such smart color. I vote for leather and . . . I think . . . that makes it unanimous.

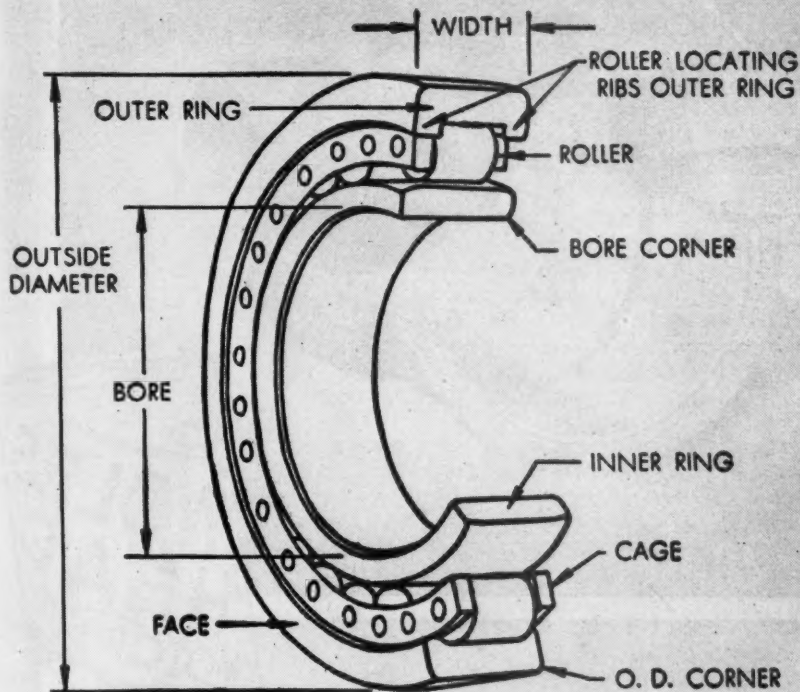


*For distinction, durability and sales appeal nothing takes the place of **GENUINE LEATHER***

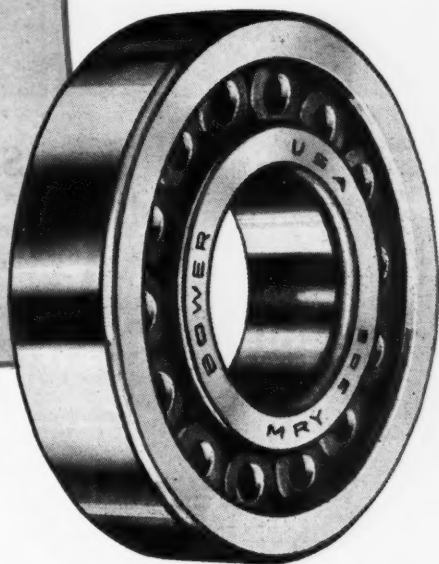
THE UPHOLSTERY LEATHER GROUP

Tanners' Council of America • 100 Gold St., New York 38, N. Y.

American Leather Manufacturing Company, Newark, N. J. • The Ashtabula Hide & Leather Company, Ashtabula, Ohio
 Blanchard Bro. & Lane, Newark, N. J. • Delaware Tanning, Inc., New York, N. Y. • Eagle-Ottawa Leather Company, Grand Haven, Michigan
 The Lackawanna Leather Company, Hackettstown, N. J. • Radel Leather Manufacturing Company, Newark, N. J.



BOWER ROLLER BEARINGS



Quality....

With straight roller bearings for popular numbers and the extensive tapered roller bearing line, Bower offers you the most comprehensive coverage for service needs! Bower "Spher-O-Honed" tapered roller bearings represent the peak in high-precision quality production.

For quick, complete service on Bower call your Federal-Mogul Jobber! You get the parts you want when you want them. Bower and Federal-Mogul—an unbeatable combination for complete bearing service to you!

Service

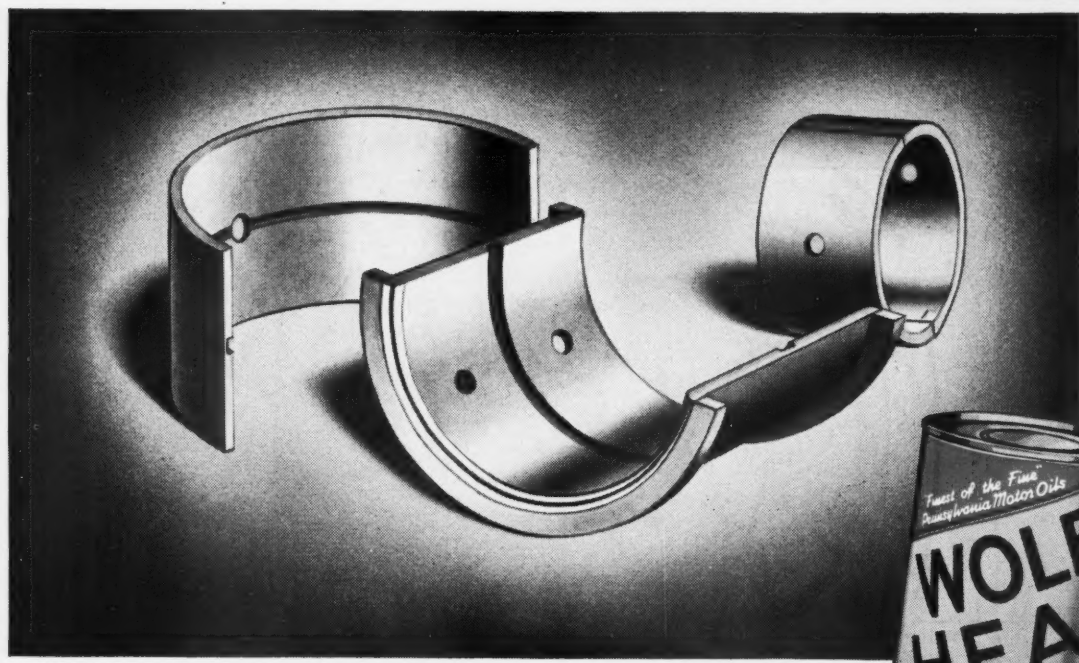
FEDERAL-MOGUL SERVICE, DETROIT 13, MICHIGAN

(Division of Federal-Mogul Corporation)

Ask your Federal-Mogul Jobber!



PICTURES OF PERFECTION



IT PAYS
TO BE
PARTICULAR
ABOUT YOUR
OIL

So **PRECISE** that tolerances are measured in thousandths of an inch yet so rugged that they can endure tremendous pressures . . . bearings are truly "Pictures of Perfection." Their *only* protection against friction, excessive wear, heat, corrosive acids is a *microscopic film of oil*.

Be sure that you recommend and sell the finest protection that money can buy . . . **WOLF'S HEAD MOTOR OIL**—100% Pure Pennsylvania, "Premium Grade." **WOLF'S HEAD**, made from nature's finest crude, is refined *three steps further* than ordinary oil.

- 1 **THOROUGHLY DEWAXED**—flows freely at all temperatures and gives instant, full-bodied lubrication.
- 2 **DOUBLE-DISTILLED**—free from impurities that cause excessive oil consumption, sludge, undue wear.
- 3 **TRIPLE-FILTERED**—highly resistant to sludging and oxidation. Non-corrosive to bearings. Won't thin out at high temperatures or get sluggish at low temperatures.

WOLF'S HEAD means the "Finest of the Fine" to millions of motorists everywhere!

Free! "Rules-of-the-Road" Folder. Contains safety hints, speed laws, driving regulations for all states. Write for a copy.



Wolf's Head Oil Refining Co., Inc., Oil City, Pa., New York 10, N. Y.

WOLF'S HEAD

MOTOR OIL AND LUBES

100% Pure Pennsylvania
"Premium Grade"



Member, Penna. Grade
Crude Oil Association

Q Question:

can you increase your lubrication sales \$7,461 a year?

A

Answer: Thayer Motor Company DID!

In just one year their lubrication volume shot from \$5,402 to a \$12,863 total! Reasons behind such success: (1) complete modernization of their lubrication department with genuine Alemite equipment, and (2) tight control over all car purchasers with Alemite "Magnet Plan" features. Well pleased with the results — and with Alemite's Business Expander Follow-Up System in daily use — this Clearwater, Florida Dodge-Plymouth dealer is well prepared for a continued, steady build-up of customers . . . a steady build-up of profits, too!



THE ALEMITE "MAGNET PLAN"
will show you how!

Check these...

**Alemite "Magnet-Plan" Services
Only Alemite Gives You All 11—
Fully Tested, Fully Proved!**

1. Counsel and concrete assistance from one of the 300 Alemite Service Promotion Specialists.
2. Powerful Alemite National Advertising—year after year—pre-selling lubrication prospects for you.
3. "Business Expander" follow-up systems.
4. "Prescribed Lubrication" program.
5. Sales-building seasonal campaigns.
6. "Gusher Plan" . . . to build motor oil sales at the service bay.
7. "Sales and Service Security Plan" including the 30,000-mile guarantee for new and used cars and trucks up to 1 ton.
8. Monthly Analysis Sheets, to prove increased service sales.

Alemite Equipment for—

9. Specialized Lubrication Service.
10. Electronic Wheel Balancing Service.
11. Underbody Coating Service.

No magic formula, the Alemite "Magnet Plan" employs the good common sales-sense of not stopping with the sale of a \$1.50 grease job . . . but going far beyond it to the sale of profitable parts and service business in every department. Your lubrication department is the customer-attracting "Magnet." To give it maximum "pulling power" Alemite provides you with the

ideas and services that will help you build more regular business and produce more repeat business year after year. Find out how well these "Magnet Plan" features fit your needs, your manner of operation and your desire to get more good-paying service business more often! Call your Alemite Distributor or write Alemite, 1826 Diversey Pkwy., Chicago 14, Ill.

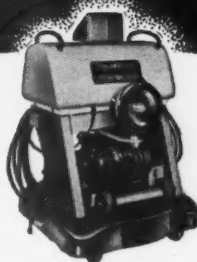
ALEMITE'S

Electronic Wheel Balancer Service

A consistent source of "extra" income. Proven successful by hundreds of dealers. Features the new Stewart-Warner Electronic Wheel Balancer—the simplest, fastest, most accurate yet invented! Enables you—in minutes—to check all wheels, in true running position, **RIGHT ON THE CAR**. Today, with current tire restrictions and shortages, an opportunity you can't afford to miss. Ask your Alemite salesman!



Visi-Drum Pump



Electronic Wheel Balancer



Underbody Versatall Pump



Marshall Line Pump



Rocket Line Pump



Wall Alemite



ALEMITE
OLDEST, MOST RELIABLE NAME IN LUBRICATION.

Ace-High Performance!



Sealed Power

MD-50 STEEL OIL RING

The only ring with the FULL-FLOW SPRING

Controls oil even in

BADLY TAPERED
and
OUT-OF-ROUND BORES

Sealed Power CHROME-FACED RING

For Triple Mileage

Successfully fights
**ABRASION, FRICTION,
CORROSION, HEAT**



SEALED POWER CORPORATION, MUSKEGON, MICHIGAN

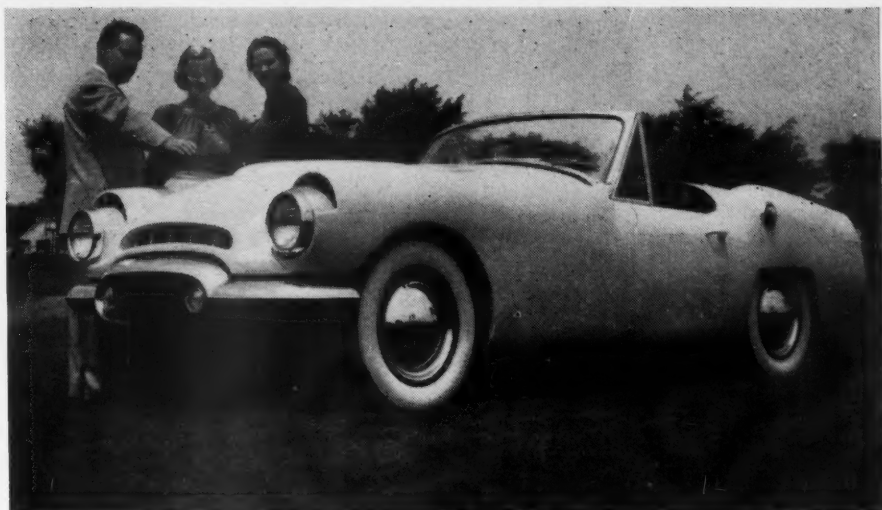
Sealed Power Piston Rings

BEST IN NEW CARS!

BEST IN OLD CARS!

M
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Designer: Wm. Flajole. Owner: Ted Williams.

—newsçène—

Sports Car Custom Built for Ted Williams by Wm. Flajole

The Ted Williams Flajole Special, a \$25,000 sports car with a top speed of 125 miles per hour, is being featured by the makers of Johnson's Wax in their name-the-car contest.

Designed especially for Ted Williams, of the Boston Red Sox, by William Flajole and Associates, the car is powered by the "Dual Jetfire" Nash Ambassador 6-cylinder overhead valve engine. It is equipped with an all aluminum racing head and other major modifications for high speeds. Designed to use premium fuel, it has a new type aluminum cylinder head offering a compression ratio of 8.1:1 with developed power of 125 hp at 4000 rpm. It has two British S. U. horizontal carburetors working in conjunction with an oversized "Sealed-In-Iso-Thermal" intake manifold.

The engine's sealed-in intake manifold passages are formed directly in the main engine castings, water cooled on two sides, designed to provide even gasoline

distribution and improved temperature control.

The sports car's distinctive front end appearance is achieved with a broad low hood and car-long horizontal body lines. Body panels, as well as most structural parts, are made of aluminum. The curb weight is about 2700 pounds; wheelbase, 102 inches; overall length, 170 inches; and width, 66 inches.

K-F Explores Car Sales Through Chain Store

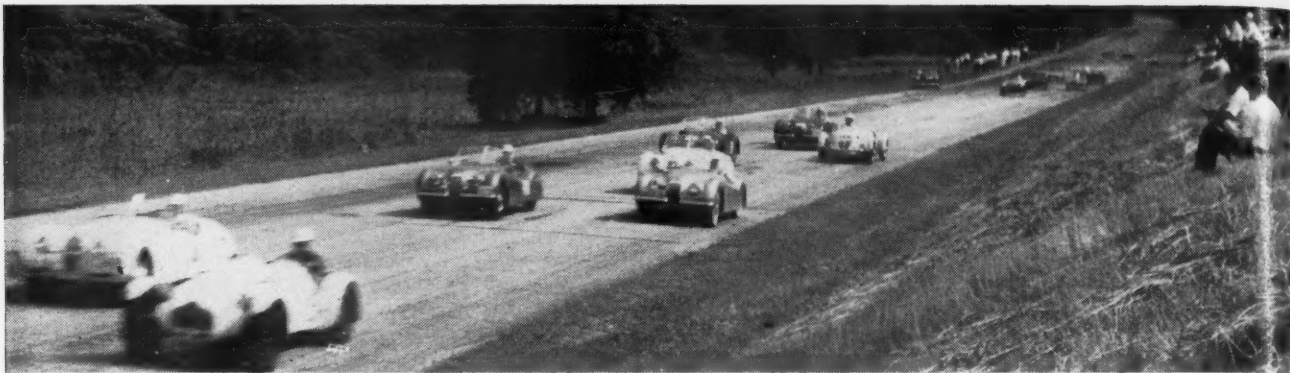
Kaiser-Fraser has held discussions with a large retail chain to explore the possibility of a test program for sale of the company's Henry-J cars through the chain's retail stores. There is nothing definite in the way of such a program yet, however. The problem is a particularly delicate one between K-F and its dealers, and it is understood that if and when such a program is tried it would be in areas where K-F either has no dealers or perhaps a weak dealership. It is also understood that the chain is Sears Roebuck.

Study of Safety Check Made by IIHSC

Sampling of the recent safety check made by the Inter-Industry Highway Safety Committee shows that approximately one out of every three cars in the nation need maintenance to one or more parts affecting safe operation. Brakes and lights headed the list of all items needing attention. One out of ten cars needed brake work; one out of twelve had rear light trouble; one out of thirteen faulty headlights; one out of fifteen bad windshield wipers.

Industry Expects OPS O.K. On Car Price Rises

There is considerable optimism among passenger car companies that price increases will be allowed soon by O.P.S. Car makers have excellent data to justify higher prices on the basis of greatly increased cost of materials, higher wages, and greater unit costs because of lower volume imposed by controls on materials.



Sports Car Club Meets On Studebaker Proving Grounds

Hal Ullerich, a 33-year-old mechanic for the famous Evanston, Ill., auto collector, D. Cameron Peck, took speed honors at the second annual Chicago, Detroit, Milwaukee, Indianapolis region meet of the Sports Car Club of America, held recently on the Studebaker proving grounds, South Bend. Ullerich covered the three-mile, asphalt, pear-shaped, closed course in a 103.8 mph qualifying run, piloting an Allard J-2 with a Mercury engine.

The four regions, gathering 350 members and guests and about 60 cars for the meet, staged qualifying runs, two five-lap races for cars with less than 1,500 cc piston displacement, the nine to 12-lap South

Bend handicap and a feature skillful driving contest.

Detroit garage owner, Paul Farago, scorched the high-banked circuit in his custom-bodied Fiat at 87.8 mph to mark the fastest time for qualifiers in the under-1,500 cc class.

The South Bend Handicap, main event, was won by James Simpson, Jr., of Chicago, in a Healy Silverstone with a Riley, four-cylinder engine at an average speed of 91.5 mph for 10 laps. He nosed out Ullerich's Allard which was handicapped at 12 laps. Paul Farago, with only nine laps to go in his Fiat, copped second place at 78 mph.

In the five-lap races for under-

1,500 cc cars, the first was won by Paul Farago, Detroit, in a Fiat at an average 88 mph; Max Goldman, Detroit, took the second race in an MG-TD at an average 80.9 mph.

Women and men both took part in the skillful driving run. It consisted of a 50-yard, snaky run between fragile, wooden spindles and a return trip through half a foot of water in a Studebaker test pit. Winner and dampest driver among the men was Phil E. Dorrough, Chicago, in an MG-TC; among the women, Mrs. C. N. West, Chicago, in an MG-TC.

Old Timers to Hold 12th Anniversary Dinner

The Automobile Old Timers dinner to be held in Detroit, October 4th, will be the twelfth anniversary dinner. The principal speaker for the evening will be Paul G. Hoffman, director of Ford Foundation. More than a thousand guests are expected to be at the dinner held in conjunction with Detroit's 250th Birthday Festival.

"Le Sabre" To Go On Exhibition at State Fair

Le Sabre, GM's experimental car, described in an article in January MOTOR AGE, will be on display at the Michigan State Fair, August 31st to September 9th, first public display of the fabulous "Laboratory on Wheels," which expresses many advanced styling and designed features from the GM styling section. It is expected that many of the mechanical features and much of the styling as well, will be translated into practical production features of motor cars in the not too distant future.



They Appreciate Art

The boys of Hi-Speed Power Equipment Company, out on Long Island, were so impressed with our May cover, that they made a large size poster of it for display on the shop counter. The group near the counter are the McCarthy boys, the shop assistants, the office girls and Frank Dominianni, manager.

OPS Cracks Down On Used Car Dealer

That the Office of Price Stabilization means business in its drive to prevent over ceiling prices under the table payments and improper methods of the sale in new and used automobiles, was made obvious recently when the U. S. Attorney brought proceedings against a used car dealer in the New York region. The information for the proceedings, the result of investigations by OPS district enforcement officers, alleged that the used car dealer had violated ceiling price regulations in the purchase and sale of a 1951 automobile at over-ceiling prices. It further alleged that the company failed to keep proper records as required by OPS regulations.

Scrap Drive Committees Named by Auto Wreckers

Members of the National Auto Wreckers Assn. in 102 cities throughout the United States are organizing scrap mobilization committees in cooperation with the iron and steel scrap program now being conducted by the National Production Authority. The Auto Wreckers Industry has appointed 13 regional committee chairmen for regions corresponding to the

13 Department of Commerce regions. Each will select a committee of auto wreckers in his own area. All wrecking companies are urged to remove salable parts from these cars as soon as possible and to pass the remainder into scrap channels.



Not so long ago we kissed the spare tire goodbye. But the government has reversed itself, and here is Syd Turner bussing his new fifth wheel hello. The ban was lifted while he was flying to Willow Run to pick up a new car. And look at all the rare white rubber he got, too!

Atam Annual Meeting Held in Detroit

The three-day annual meeting of the Automotive Trade Association Managers was held at the Book-Cadillac Hotel, Detroit, recently, and was well attended by Association Managers from all parts of the United States, as well as from Hawaii and Canada. Several presidents of major local State and National Automotive Trade Associations were in attendance, including NADA President R. D. McKay and members of the NADA staff.

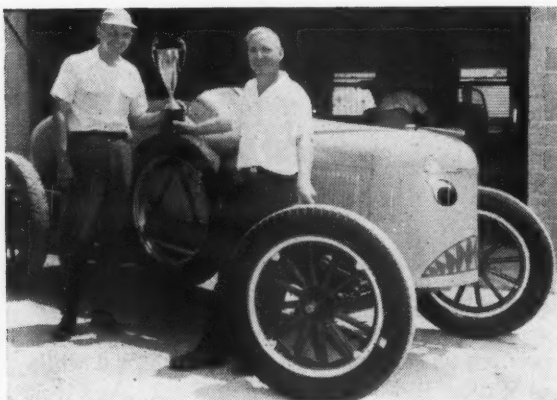
NADA Completes Plans for Convention in January

National Automobile Dealers Association's 1952 Convention Committee has completed preliminary plans for the big dealer meeting in New York City, January 27-30. Service clinics, general clinics, and general convention sessions are designed to cover every phase of dealer operations. Stressing the essentiality of automotive transportation, the entire program will be built around expanded and improved service to the motorists of the nation.



When Jimmy Long, Florida inventor, is away from his car and the rains pour down, his automatic rain cell takes over. When the first drop of rain hits the screen covered unit, the top goes up automatically and the windows are raised. The gal got in legitimately to drop water on the unit because it wasn't raining that day in Miami.

—news scene—



By squeezing every drop, Dave Berry and Fred Schuette won the Shell Oil Company mileage marathon with their 1924 Chevrolet. Their 98.6 mpg is far below the 134.18 mpg record of last year, but it's hardly wasting fuel.



Stan Lomax, ace sportscaster, stops for a chat with pretty Lola Fisher at Roosevelt Raceway, trotting race track on Long Island. The station wagon is a regular fixture at the track.



Summer sands are good for skiing but sandplaning gives a new twist to the old sport. The plywood sleds are towed safely behind 4wd jeeps at speeds up to 35-mile per hour on the beach near Southampton, Long Island.

It can't be done say the experts, but he did it. Joe Heirman of Delta County, Michigan, picked up this blunt-handled wrench while driving on blacktop pavement, and it went clear through his tire. What's your theory?

Louis S. Clarke, founder of the Autocar Company, is proud of them both. The two-cylinder Phaeton with left-hand drive, he made himself in 1898 and restored recently. The modern Autocar tractor is one of their latest models.



... Report to Our Readers



We're Agin' Nationalization— Or Are We?

WHEN, in the course of political double-talk our government sees fit to look with "sympathy" on the nationalization of the oil industry in Iran, the time has come, we feel, to take stock of our Government's attitude on the whole subject of nationalization as opposed to the American idea of freedom to own property—our businesses and our homes—here in the United States.

Let's put it in simple terms. Nationalization of business or industry means working for the Government, instead of the Government working for you. It means that the Government can step in and put you out of business; take over your assets and your successful operation and run it without you.

Pretty soon, things get fouled up because, by and large, Government people know a lot about politicking and little about running a business. Thereupon, you are asked to come back and get them straightened out. Being out of work and with kids to feed, you say okay. But it isn't your business or industry any longer, and you're just a hireling. You can't make a profit on this deal because the Government now owns the business and there is no profit for you. The old incentive is gone for good.

If nationalization of oil properties is looked upon with "sympathetic interest" by the American Government in the case of Iran (where there are no American interests can it not be reasoned that it's okay in countries upon whom we rely not only for oil, but for rubber, iron ore and other strategic and critical materials? From that point, it's just as easy to reason that such industries should be owned by the National Government here in the U. S. A.?

Last month, our Government told others to work out "principles of nationalization" even though we're dead set agin' 'em ourselves. We are—but are our international politicians?

Trouble Shooting Demonstrated

DODGE dealers of Los Angeles recently put on a show that caused considerable public interest and lined up a new crop of mechanics for their service departments. Working with the L. A. Board of Education they sponsored a Trouble Shooting Contest among mechanic trainees attending trade and vocational schools. The show was outdoors and televised. The swiftness, efficiency, competence and courtesy of the young mechanics was rewarded with fine trophies and the public got a good look at what well-trained mechanics do.

Know How and Sell How

In the automotive service trade today the mechanic is far from the ancient blacksmith who was his forerunner fifty years ago.

He is an expert in his field and with the aid of highly developed tools and modern shop equipment he can be a master mechanic commanding as much respect as any professional.

The knowledge that he has the ability to do a perfect job is the power required by service dealers to sell their know-how and increase their profit stature.

There is no such thing as a good mechanic who does not know how to sell his service. A few simple rules are all that are needed in accomplishing these results.

Granted that he knows his ability to perform, he need only add these tips to improve his ability as a service salesman.

Be friendly, be pleasant.

Be willing, be alert.

Be honest with your customer, be honest with yourself and don't be afraid to ask them to buy.

Frank P. Tighe

Editor



Fluid Couplings

A DODGE-PLYMOUTH dealer in Philadelphia successfully rebuilds Fluid Drive couplings for all Chrysler products. They not only rebuild their own units but also supply the trade with exchange units. Over the past three years 500 couplings have been recondi-

tioned successfully. The units carry a 4000-mile or 90-day guarantee which includes labor for removing and replacing the unit.

These units have been reconditioned in the field in the past but it was impossible to replace the front bearing. When this bearing became

Fig. 4. To remove the front bearing cover insert a drift pin from the opposite side and drive the cover out.



Fig. 5. Remove the front bearing by using another special collet on the slide hammer to pull it out.



Fig. 6. Next, examine the bellows seal seat and, if it is marked or pitted, hone the surface of the seat.

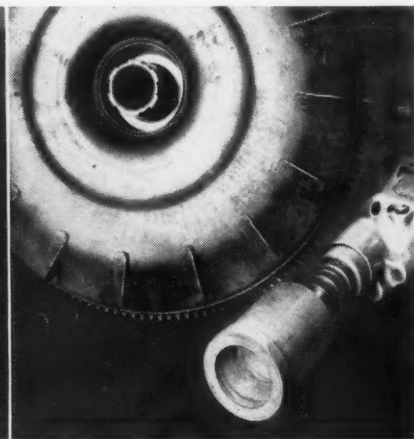




Fig. 1. The pressure plate nut is removed with a special wrench and holding tool. The plate is taken off with the puller.

Fig. 2. After the pressure plate is removed, the opposite side of the wrench is used to unscrew the bellows seal assembly.

Fig. 3. Insert another special expanding tool in the runner hub bushings. Use a slide hammer to remove the bushings.

Can Be Rebuilt

noisy, the unit was discarded and replaced with a new one. With the method given here, the front bearing can be replaced as well.

Any mechanic can be trained to recondition these units if he is supplied with the necessary special tools
(Continued on page 86)

A major overhaul on these units includes replacement of inner bearings. Here's how this major job is performed

by Jack Montgomery
Technical Editor

7. It is advisable to stake the runner hub to provide a tight fit for the bearing. A special tool is used.

Fig. 8. Sometimes it is necessary to install an oversize front bearing. The cutter shown is used for this purpose.

Fig. 9. A cutaway view of the overhauled Fluid Drive unit showing all the principle working parts.





Let's Look at the "Offy"

The 103 cu. in. Offenhauser engine, produced by Meyer & Drake Engineering Corp.,

THE three midget race cars at the left in the scene above are powered by the famous 103 cubic inch Offenhauser engine, now being manufactured by the Meyer & Drake Engineering Corporation, Los Angeles, Calif.

Two of the cars are owned by Anthony Caccia, a corner of whose shop is shown in the illustration. The other midget and the big car are stored and maintained by Tony. The big car was 1946 winner at Indianapolis.

Fig. 1. The double concentric valve springs. Notice also the finned water jacket which is removable by taking out the screws around the edge of the plate.

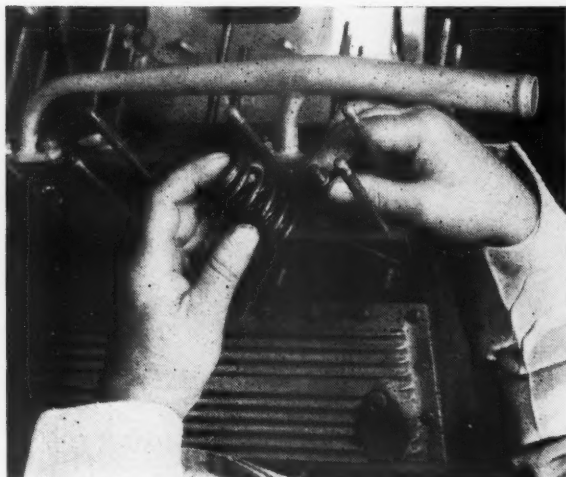
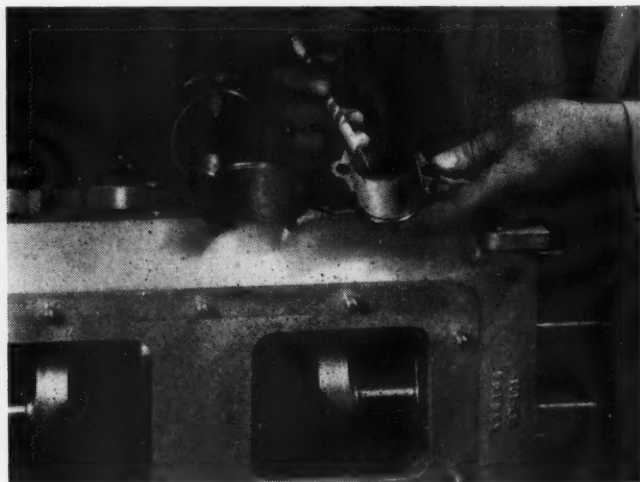


Fig. 2. A connecting rod bearing which has been removed after twenty races. The surface is still shiny and free of pits, suitable for further dependable use.



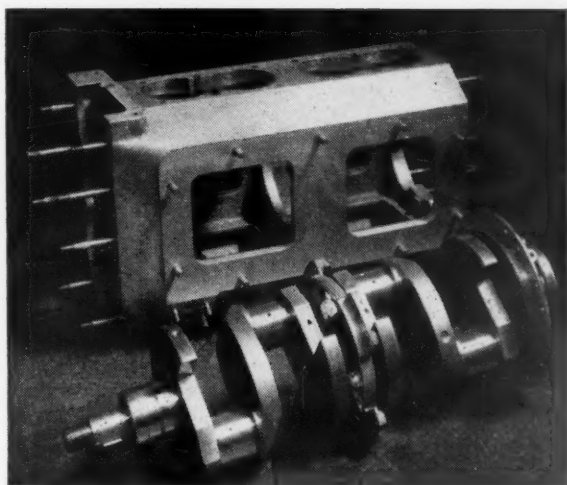


Fig. 4. The crankshaft and main bearings removed from the crankcase. The mains are babbitt-lined bronze castings which bolt to the crankcase webs.

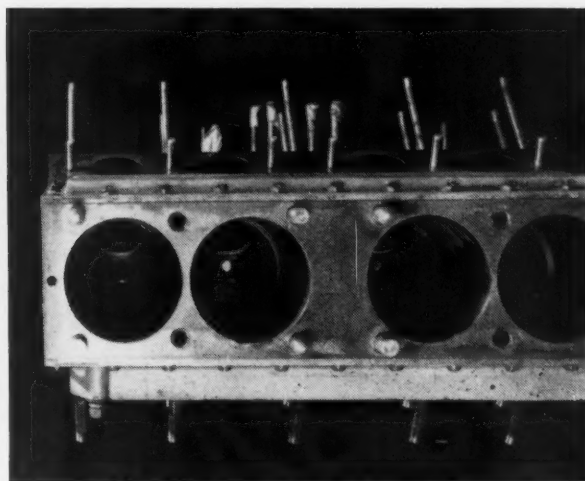


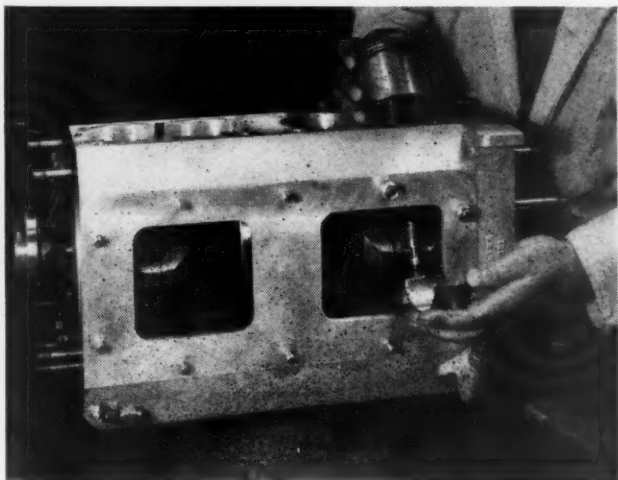
Fig. 5. Looking inside the integral block and head. The valve ports can be seen up in the combustion chamber, with the plug hole in the center.

by Arthur H. Nellen, Jr., Service Editor

is now used in almost all midget race cars

While in Tony's shop in Rosemont, Pa., MOTOR AGE had an opportunity to look inside the Offenhauser. These engines are torn down at least once every three races in order that rings, bearings and valves can be examined. Dusty tracks

Fig. 3. Removing a piston from the crankcase, using the large hand holes which are provided for this purpose. In operation, a plate covers the holes.



play havoc with internal engine parts, and ring and valve jobs are performed frequently.

Everything about the "Offy" is special. Special fuel, methyl alcohol, is used; special plugs of a cold heat range are used; a special floatless carburetor is used, which employs a standpipe and two fuel pumps, one from the tank and one to return the excess to the tank.

The cylinder block is a single piece, nickel-iron casting with the head cast as an integral part of the block. The reason for the one-piece construction is that high compression ratios (13-1 to 15-1) and high speeds (7500 rpm) cause extreme pressures and vibrations, which might cause head-gasket failure. The integral construction eliminates this hazard. The combustion chamber is hemispherical in design, accurately cast for uniformity. The spark plug is located exactly in the center of the chamber, with the valve ports on either side.

The block is fastened to the crankcase by half-inch studs. The aluminum crankcase is of the barrel type, designed to insure rigidity and simplicity. It has a dry sump base, which provides no reserve of oil in the crankcase. The main oil supply is kept in a reservoir tank underneath the driver's seat. Fifteen quarts of a high grade SAE 50 oil flow through the system. Two oil pumps are incorporated in the crankcase, one to pump oil through the engine at 80 pounds pressure and the other to scavenge

(Continued on page 90)



Much helpful information on body repairs is available in Chilton's Motor Age Body and Frame Manual.

Try your estimates on these wrecks and compare figures with those given on page 114

MOTOR AGE showed these six pictures to a group of body and fender experts. They were asked individually for time estimates on each job, considering only body metal straightening and refinishing. No frame straightening, wheel alignment, glass replacement or trim work was to be counted in the estimate. Just the straightening of the body panels which are mentioned in the captions. It is assumed for the purpose of this quiz that none of the damaged parts are replaceable.

Write your estimates in the spaces provided under the pictures and then turn to page 114 to compare your figures with the average of the estimates submitted by Motor Age's group of experts.



Straighten, align and refinish the left front fender and hood on this '49 Ford.

1. Time estimate: hours.

Clock Yourself

The right door of this '50 Studebaker coupe has a good "dish". Straighten and refinish the panel.

4. Time estimate: hours.





Here's a bent door on a '50 Pontiac. Straighten, align and refinish the door
2. Time estimate: hours. . .



The left front fender on this '38 Ford is to be bumped out and refinished.
3. Time estimate: hours.

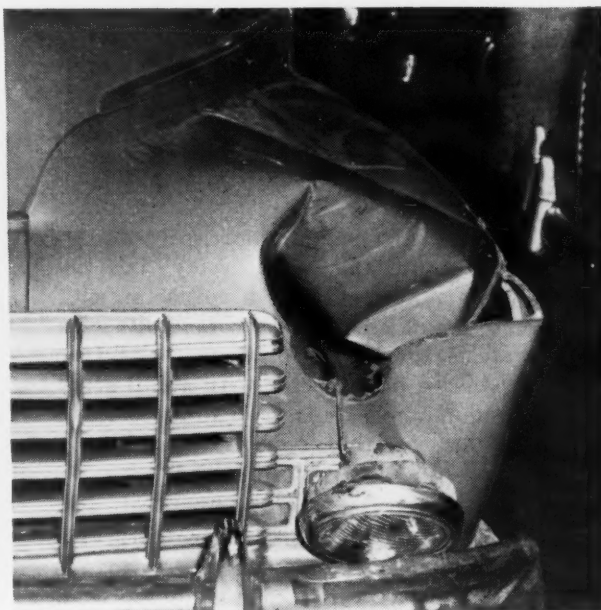
on Body Bumping

Both fenders and the hood need straightening, aligning and refinishing on this '49 Studebaker.

5. Time estimate: hours.

Another left front fender job. This time it's on a '46 Dodge. How long to straighten and paint?

6. Time estimate: hours.



Tips On Overhauling Generators

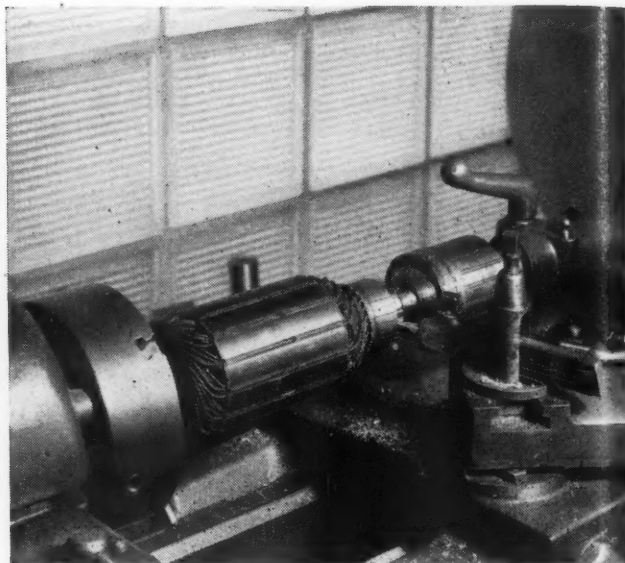
A mechanic need not be a specialist for generator reconditioning, so long as the proper test equipment is used and an approved procedure is followed

by Jack Montgomery

Technical Editor

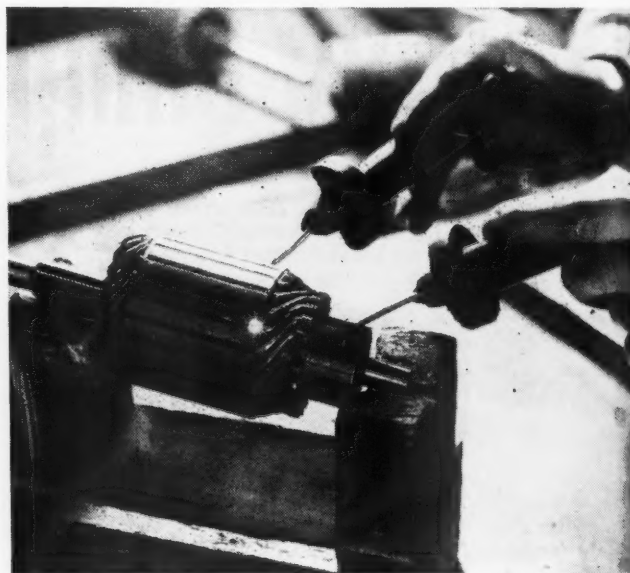
TO overhaul a generator properly when a generator test bench isn't available, the following instruments are necessary to test the generator, the cutout relay, and the voltage or current regulator: a voltmeter with a full scale reading from zero to ten volts (for 6-volt systems) or a zero to twenty volts (for 12-volt systems), an ammeter with a full scale reading from minus 5 amps to 40 amps positive, and a $\frac{3}{4}$ -ohm variable resistor (for 12-volt systems).

After the generator is disassembled and cleaned, inspect the commutator carefully where the armature wires are soldered, to see that they are firmly attached and to see that



1. Taking a cut off the commutator in a lathe.

4. Testing the commutator for open circuits.



no solder has been thrown out. This can best be checked by examining the inner surface of the cover band after removing it. If bits of solder are found, it is a sure indication that the armature wires are probably loose.



2. Undercutting the commutator mica.



3. Testing the armature for grounds using a growler.

5. Soldering wires to the commutator



6. Winding special insulating tape on the field coil.



Examine each commutator bar for pits or burns. They very often indicate that the damaged bar is connected to an open or short circuited coil. If the wires are loose or detached at the commutator or the solder has been

thrown out, it will be necessary to re-solder them and all the excess solder between the commutator bar should be removed. The armature should then be installed in a growler;
(Continued on page 120)



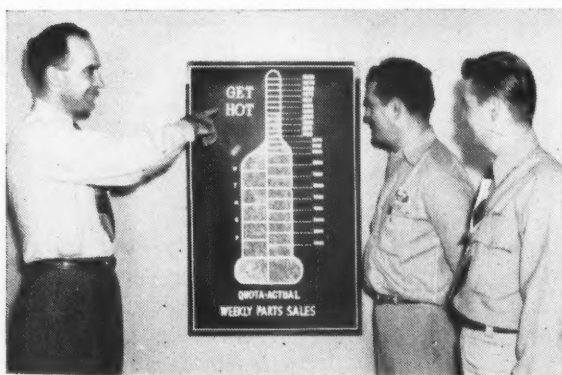
The Frank Kent Motor Co. building, Fort Worth, Tex. 116 employees work in the 256 ft. long structure

Successful Incentive Plan for Your Parts Department

Everyone in Frank Kent's dealership profits by their incentive plan, the success of which is evidenced by the firm's record of parts sales

by C. Thomas

Cliff Ternal, service manager, discusses quotas with two of the employees.



ONE of the serious arguments against incentive pay plans is that they do not equitably include all the personnel who should justifiably be participants.

Frank Kent Motor Company, Ford Dealers, Fort Worth, Texas, worked out a plan that they say functions successfully as far as personnel is concerned and is one of the contributing factors that keeps this firm in fourth or fifth place in service and parts volume among Ford Dealers across the country.

Every employee participates equally as the parts volume warrants it.

First a weekly quota was set up. To make this easy to understand, we are going to call the weekly quota an even \$10,000. This, incidentally, is only a few dollars above the actual figure.

We know that some of the employees, according to the duties they perform, are worth more to the company than others. Therefore, base pay varies. For illustration, a counterman's base salary will be higher than a tire changer's.

But . . . as far as working in unison, the tire changer is in a good position to suggest parts to the customer he is serving. When he is being

(Continued on page 72)*



WHAT IS SLUDGE?

WHAT is oil sludge and varnish that is found inside most engines, around the valve springs, piston rings and in the crankcase? It is usually carbon, dust or other materials held together by gummy or oxidized oil. Foreign materials are present in any engine due to the result of normal engine operation such as products of combustion, carbon in finely divided form, dust being drawn through the carburetor or breather. Also small particles of metal from the bearings, rings and cylinders would wear and combine with oxygen to form metallic oxides. If it were possible to get rid of the detrimental elements as quickly as they were formed in service, satisfactory performance could be maintained indefinitely. But here is what happens: Sludge and gum builds up and gradually accumulates and fills in the slots in the oil control rings. This makes them stick fast in their grooves, causing pistons to slap and the engine to lose power. Then the blowby past the piston rings forces unburned, heavy ends of gasoline and products of combustion down into the crankcase. This dilutes and contaminates the engine oil. On the intake stroke excess quantities of lubricating oil containing minute particles of sludge, are drawn into the combustion chamber,



**Here is an open discussion on the
main causes of sludge formation
and the methods of preventing it**

and then to the valve stem and guides. Heavy sludge or gum on the valves soon causes the valves to stick, the engine loses power and overheats.

Sludge, gum and carbon are all closely related. Sludge when stewed down by heat becomes gum and gum when burned becomes carbon. Sludge usually increases the consumption of both the gasoline and the oil.

If fuel is entering the crankcase, causing dilution, it could be the result of the carburetor float level being set too high, or worn car-

buretor jets or a faulty needle valve in the carburetor. This would cause flooding or faulty automatic choke. Fuel pumps should be checked for excessive pressure and cracked diaphragms, that cause fuel leakage into the crankcase.

Water in the oil accounts for most sludge and varnish in engines and it can be kept to a minimum by keeping the crankcase temperature above 120 degrees. This can also be done by using a thermostat in the cooling system that opens around 160 degrees or higher.

A head gasket that doesn't seal properly will allow water to enter the combustion chamber and rapidly cause sludge. When lacquer or varnish forms in an engine, it is usually the outgrowths or by-product of gasoline and engine gum.

Pop Beats a Hum

Larry thought that the car's trouble was chronic until Pop showed him how a dislocated

TOMMY WINTERS looked up from the tire he was changing on the floor of Pop O'Neill's Repair Shop as Larry Tait came striding in.

"How'd it go?" said Tommy.

Before replying Larry mopped his perspiring face with a grimy blue bandana. "Lousy," he

said. "That hum in the rear end is pinion bearings, all right. It means a whole rear end job, and we'll have to do it fast. Better leave that tire and give me a hand with it. At least until we get it apart."

Tommy stood up and wiped his hands on his coveralls. "Sure," he said. "Drive her in back."



with a Hunch

diagnosis hindered the cure . . . by Charles M. Kenyon, Managing Editor



Pop O'Neill

He went for his tool box and Larry drove the 1947 Buick Special into the back room. Tommy jacked up the rear end of the car and crawled under on a creeper. When the torque tube was disconnected and the rear out from under, Larry came walking brusquely over to Tommy. "Better get that tire done now," he said. "That one's a

friend of Pop's, too, and we can't keep him waiting either. I can handle this one alone now."

He worked fast and expertly and before quitting time had installed new pinion bearings, examined the ring gear carefully, and replaced the unit, setting it up with a dial indicator.

As he wiped his carefully scrubbed hands on the big roller towel, Larry said to Tommy, "Just a road-test in the mornin' and we'll be through with this one."

Pop O'Neill opened up the shop himself, as usual, about half an hour before Tommy showed up, and a good three quarters of an hour before Larry usually put in his appearance.

When Tommy came in Pop turned to him, "Good mornin', Boy," he smiled. "Did Larry get that '47 Buick finished last night? It looks O.K."

"I think he did," Tommy replied. "But it hasn't been road tested yet, and you know what happened when I let one go without road testing it. We better be sure we test it good."

"Well, back it out," said Pop. "I'd like to get this one out of the way. Mac Fisher really blows off if you keep him waiting. When Larry comes he'll road test it. The way Mac spoke at the Lions Club the other night, though, it sure sounded like pinion bearings to me. That's what Larry said it was, didn't he?"

"That's what it was, all right," Tommy echoed. "Not much doubt about it."

But when Larry came back from road testing the Buick, his face looked mighty grim. "After just getting in high gear," he growled, "that damn rear end started to hum again as bad as a swarm of hungry bees. I just wasted every hot minute I worked on it yesterday. It is no better than before he brought it in. The thing is probably a lemon, anyhow."

That was one word which could always get a rise out of Pop. "There's no such thing as a lemon," Pop declared for the thousandth time since Larry had worked for him. "Only cars which haven't been repaired right! Let's take a

(Continued on page 94)



Self Service Repair Shop

An unusual idea enters the automotive

by R. Raymond Kay

SELF-SERVICE has come to the automotive repair industry. Ray Woolley, of Los Angeles, a 20-year veteran in engine rebuilding, operates a shop where the customer can come in and be his own mechanic on his own car.

After a full year's operation, Woolley reports an average of six to eight customers a day on a seven-day week. Customers take about a fourth to a third longer to do the work than a regular mechanic would take.

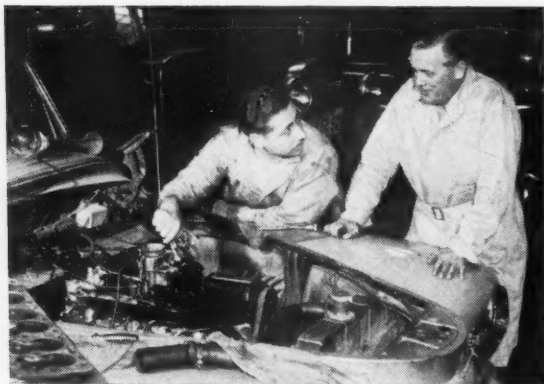
The shop is located near the business center of Los Angeles. The heaviest traffic comes in over the weekend, when most of the major repair jobs show up. Often, customers with big overhaul jobs come in Friday evening, work until 10

o'clock when the shop closes, and continue straight through Saturday and Sunday in order to have their cars ready for work on Monday.

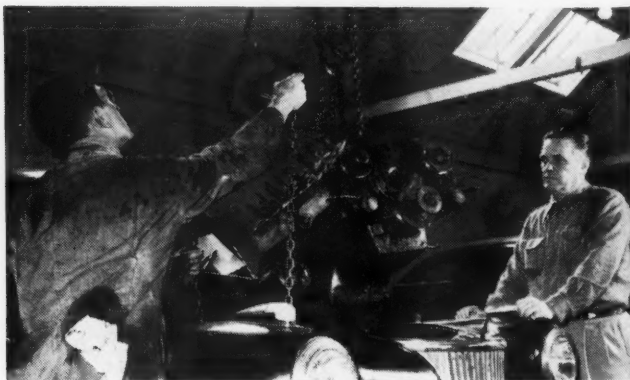
The shop layout, covering 8,500 sq ft, includes 22 stalls, a completely equipped machine shop, cleaning department, parts and tool section and office. Two overhead rails, each with two hoists, can accommodate four customers simultaneously. Six heavy duty floor jacks are also available. Woolley's pride and joy are six work benches which he made himself. The benches are constructed of $\frac{3}{8}$ in. steel, with vises attached, and are mounted on casters. They are easily rolled to any stall and the square-yard top surface will hold an engine block. This makes for easier working conditions for the customer and helps to keep the shop floor from getting cluttered.

When the customer drives in, he rents a stall at \$1 for the first hour, 50¢ for the second hour,

Mechanics are always on hand to help customers who need assistance.



Ray Woolley stands by as one of his rebuilt engines is installed.





repair field as a California shop sets up to allow customers to do their own work

25¢ for each additional hour, the total charge not to be over \$2.50 per day. The rental entitles him to the use of the chain hoist, floor jacks, four floor stands, necessary pans, and one of the steel work benches if he needs it. Tool kits, holding about \$60 worth of hand tools, can be rented for \$1 a day. Other tools not in the kit are available from the toolroom for 5¢ to 25¢ a day.

Woolley sets a limit of two workers on a car, finding from his long experience that even in the auto repair shop "too many cooks spoil the broth." A foreman is on the floor at all times to consult with

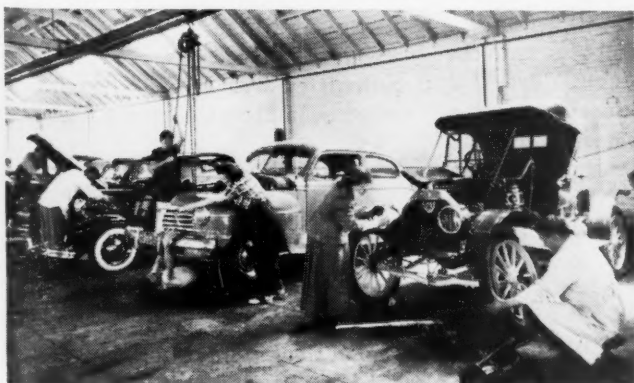
(Continued on page 114)



Cars of all makes and vintages come into Ray Woolley's shop for work.

A complete line of reputable parts are sold over the parts counter.

Above. The tool department rents out tool kits and special tools.



READERS CLEARING HOUSE

Trouble

- Steering adjustment on Buick Super
- Plymouth lacks power after tune-up
- Noise in Ford drive line
- 2,000 miles on plugs with thi scar
- Poor idle after carburetor overhaul
- Electrical problem on transmission

Steering Adjustment On Buick Super

We have a 1949 Buick Super that has a bind in the steering. When making a U-turn the wheel gets hard to turn at one spot.

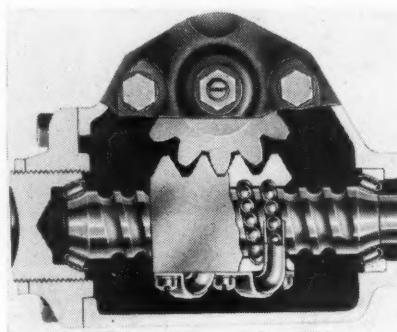
What We Did:

We adjusted the worm and the sector and also checked for frozen king pin. As far as we know this car has never been in an accident. **Submitted by:** Lansdowne Auto Service, 1544 North Redfield Street, Phila., Pa.

We Suggest:

I would go over the steering adjustment again. This time disconnect the steering tie rod from the pitman arm. Then turn the steering wheel in one direction until it stops and then turns back on revolution. Check the lash between the ball nut and the pitman shaft by working the pitman arm. If no backlash is felt, loosen the lock nut and turn the pitman shaft, adjusting the screw counter clockwise until some backlash is felt when working the pitman arm. If, after making this adjustment, the steering still binds, it

would indicate misalignment of the steering gear assembly in its mountings or a sprung steering column. Misalignment can be corrected by loosening the four steer-



ing gears to frame bolts and the two steering column brackets bolts. Center the steering column in the cutout in the dash panel and tighten the column bracket bolts. Then recheck the pitman shaft, adjusting the screw adjustment.

After a Tune-Up, This Plymouth is Slow on Hills

I recently rode to the High Sierras in a 1949 Plymouth. On heavy grades, the motor slowed down and seemed not to be getting

sufficient fuel. Temperature was near the boiling point. This is a car I have serviced regularly, so I am familiar with its operation. After the owner shifted to low gear and gunned the throttle, it picked up and reached the top of the grade and, as soon as we started down, the temperature dropped to normal running. The owner asked me what caused the trouble and I wondered if it could be vapor lock.

What We Did:

The car has just passed 30,000 miles and has had the coil replaced during the tune-up check for mileage. Also it has had a lean metering jet installed in the carburetor. **Submitted by:** K. F. Kirkpatrick, 443 Texas Street, Pomona, Calif.

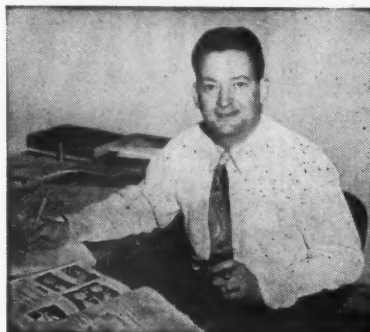
We Suggest:

On the 1949 Plymouth, the trouble is not due to vapor lock but due to a lean mixture which will make an engine run hot. Another possibility would be a head gasket leak under a heavy load, but if no coolant was lost this condition would be improbable. I suggest putting back the standard jet instead of the lean metering jet.

Shooting Problems

- Vibration problem with Frazer
- Chevrolet leaks oil from rear main
- A Buick has differential grease leak
- Half-throttle miss in this Cadillac
- Clicking noise in Olds propeller shaft

by Jack Montgomery, Technical Editor



Noise in Ford Drive Line Presents a Problem

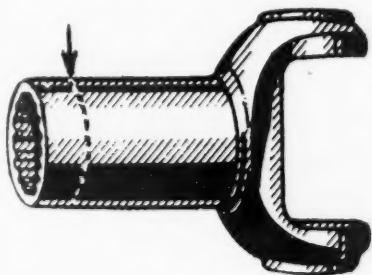
1950 Ford has a noise in the drive line when the car is starting in low or in reverse. It sounds like a loose wheel or slack in some part.

What We Did:

Put in a new spider gear, new drive shaft and still there is no improvement. **Submitted by:** Hanlon Service, Hermosa, South Dakota.

We Suggest:

Remove the driveshaft and either cut or grind the driveshaft



$\frac{1}{8}$ of an inch from the front end. What you will find is that the driveshaft bottoms in the front joint causing the noise. When re-

assembling put some white lead in the front joint where the shaft slides in and out.

Chevrolet Police Car Has Plug Failure at 2000 Miles

The trouble in one of our 1950 Chevrolet police cars is that the car pops back under acceleration and will not accelerate to even moderately high speeds after every 1000 miles of driving. At this time we sand blasted the plugs, set the gaps and reinstalled them and got about an average additional 7 to 8 hundred miles from it. The combustion ratio and timing and cooling are always kept correct.

What We Did:

We installed new rings and did a valve job and installed new plugs, which failed after 1200 miles. There has been no noticeable difference in plug life on any make or heat range. We changed the complete electrical system, wires, distributor and coil, still no improvement. Also a change was made in the carburetor from a rich to a lean mixture. Still no results. **Submitted by:** P. M. Smoak, Perry

Smoak Chevrolet Co., 324 West Main Street, Farmington, New Mexico.

We Suggest:

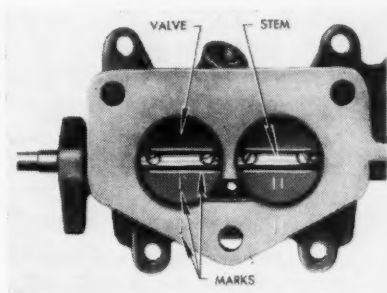
When the engine is operating under normal conditions, changing the heat range usually takes care of a plug problem. Check the thermostat to make sure it is O.K. Also make sure the damper valve on the exhaust manifold is free. Also try installing new valve packing on the valves. Try changing the spark plug setting from .040 to .035 inch. Also add an additional gasket under each spark plug.

Car Won't Idle Down After Carburetor is Overhauled

We overhauled a Stromberg carburetor on a Buick, 1950, and after putting it on the car we can't seem to make the engine idle slow enough. It runs smooth but we can't cut the idle speed down. Incidentally, this trouble didn't exist before we took the carburetor off. **Submitted by:** R. H. Erny, 1729 Cherry Street, Phila., Pa.

We Suggest:

If you're sure there are no air leaks at the gaskets and the vacuum lines are not leaking, I would suggest removing the carburetor to check the butterfly



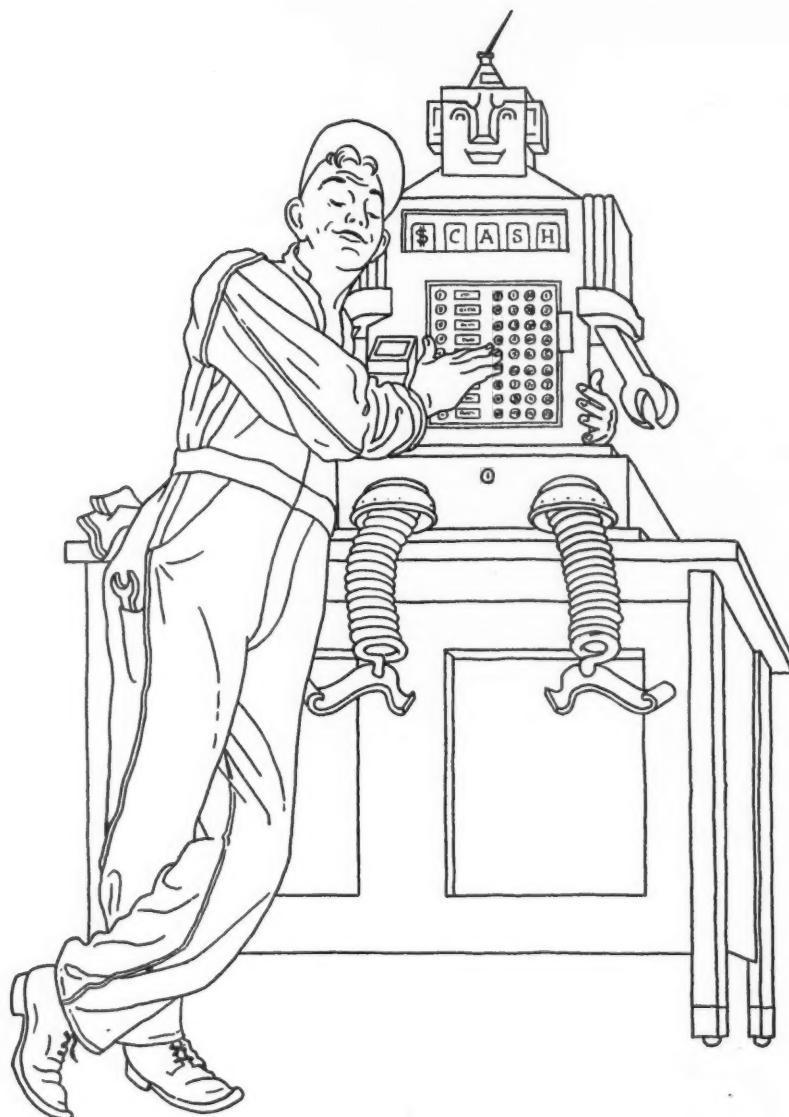
valves. These valves are marked and if mismatched they will not seat properly in the carburetor throat. Marks will be found on the valves and on the throat flange.

Electrical Problem on Chrysler Transmission

We've had trouble with Chrysler cars equipped with automatic
(Continued on page 122)

The

ROBOT BOOKKEEPER



When properly used, a good cash register can be made to perform a variety of bookkeeping functions which might otherwise require additional help in the office

by Arthur Roberts

IN this mechanical age the automobile dealer and repairman should take advantage of every mechanical gadget that will cut costs and increase profits. Usually, in this field, mechanization is considered in connection with shopwork because modern shop equipment is a big profit-builder. But mechanization is also useful in the office, especially in connection with the bookkeeping system, which is as essential to successful operation as competent workmanship in the repair department. We know many an operator in this field who does topflight repair work but he doesn't earn topflight profits because his bookkeeping system is below par.

One mechanical tool that is a big help in keeping books properly is the cash register. It is an automatic bookkeeper that speeds up bookwork, assures greater accuracy of recording and cuts its cost the same as an analyzer cuts job costs by speeding up the examination and repair of a sick engine. Bookkeeping can be done easily, inexpensively and accurately by means of a modern cash register. It serves as a bookkeeper without pay, records the original entries at the time the transaction takes place, never makes a mathematical blunder and requires a minimum of bookwork in transferring the daily summaries to cash receipts and disbursements records and business statements. The small operator who cannot afford a bookkeeper cannot afford to be without a modern cash register. As for the larger operator, he can also use it to advantage because it short-cuts a lot of bookwork and makes it more economical to handle the recording of transactions. Of course, cash registers are not novelties in this field, one finds them in almost every establishment, but in too many cases they are obsolete machines that do not provide the bookkeeping facilities obtainable with modern units.

Balancing the daily cash is a headache to many operators, especially where more than one person handles the money. Sometimes it takes many hours to find shortages or overages. Sometimes they are never found. Some operators have a "Cash Discrepancy" account. Auditing it one will find almost daily entries showing that the cash was over or short. With a cash register the cash is balanced in a jiffy, saving many hours of work each week. If more than

one person handles the cash intake and outgo there are separate cash drawers and separate sales totals making each clerk responsible for his own mistakes. If the boss is busy, the cash may be balanced by others because the money taken in by each clerk is registered and the total of the day's receipts is a secret under a control lock that only the boss can open with his key.

Departmentization is made easy with a modern cash register. The operator who records sales and expenses for the business as a whole is not doing a good bookkeeping job because he doesn't know which departments or lines are making the most money or which are losing money. In every business there will be one or more "weak sisters" carried along by the more profitable lines. Unless the books are kept on a departmental basis, the operator never catches these profit-pilferers and they cost him plenty each year.

When doing bookwork by hand many operators make no attempt to departmentize because the process is too time-consuming and complicated. Using a modern register, you get the daily sales by departments or lines—gasoline, oil, brake service, tires, batteries, major overhauls, tune-up service, accessories, etc.—so that you can determine the profit or loss for each classification.

Inventory control and its calculation for monthly profit and loss statements is simplified by means of a modern cash register. The recording of transactions by item, stock number and department make it possible to keep an accurate record of stock on hand and it will also help the operator buy and sell to best advantage.

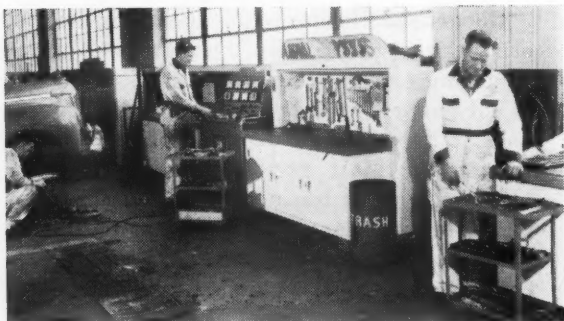
One of the worst bookkeeping problems is gasoline control. Without an adequate register, a great deal of gas can be pumped out of a tank and the boss won't find it out right away. Eventually, of course, he will compare his sales with his purchases and look for the source of the loss, but in the meantime he is out considerable money and without an adequate recording device he may never find out why his gallonage was short. Using a modern register, the total gallonage shown on the register must tally with the readings on the gas pump meters daily. This

(Continued on page 116)



Removing a transmission using an electric impact wrench and a two-post hoist helps to speed this type of job.

Time savers in each work bay are tote wagons, trash cans, water and air lines.



Removing cylinder head bolts with an electric impact wrench reduces time on a tedious operation.

Delivery of work orders to and from the parts department with the carrier tube dispatch system.



How to

Speed Service Save Time

Provide your employees with tools which

help them to turn out more work faster

THE service shop owner or manager who looks ahead needs no crystal ball to see that service work will soon pile up. Decreasing manpower means congestion of work; and forthcoming taxes and higher prices on new cars will keep a lot of old cars on the road. The combination spells trouble — unless the shop knows how to handle a greater volume of work each and every day.

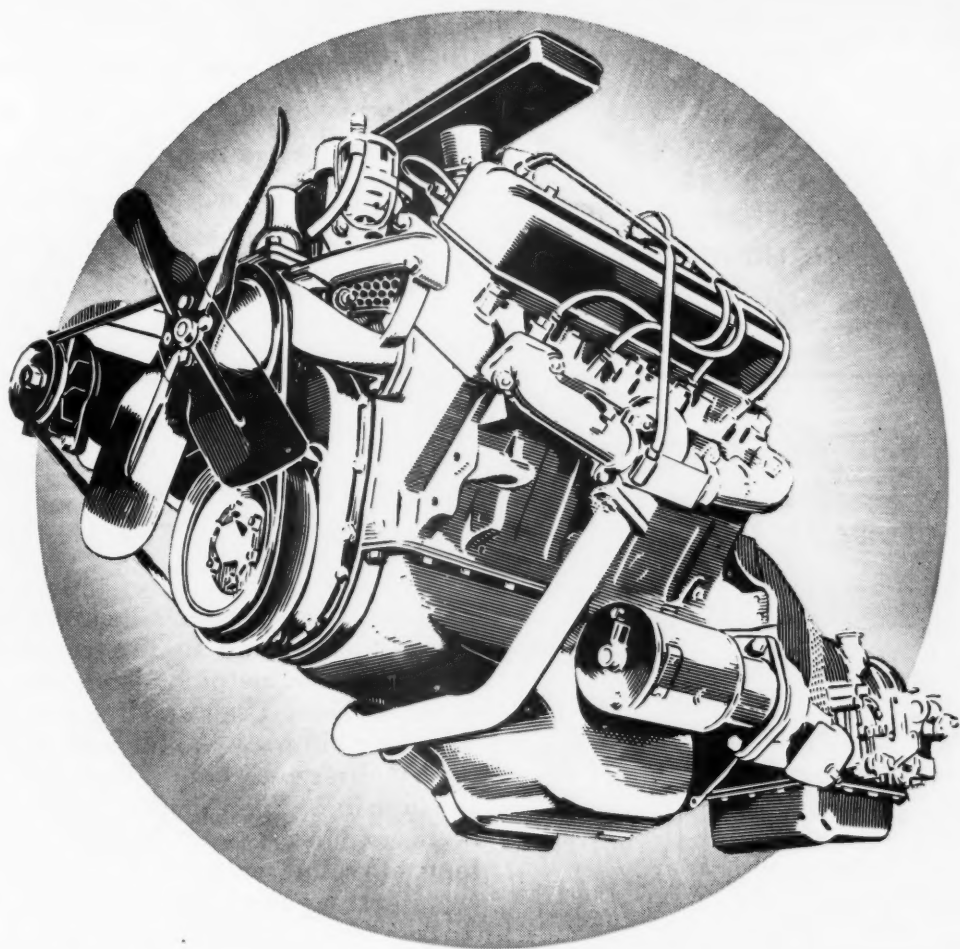
More speed in servicing means keeping the shop operating at top turnover. The problem of how to get greater speed without sacrificing quality of service has been solved by the Fred Morganstern Chevrolet Corp. in Reading, Pa. The service shop, managed by Pat DiGardi, is a fine example of how planning, organization, and the use of completely modern and up-to-date equipment can speed service, save time, and build profits for the business.

The daily turnover of this shop is 75-80 cars. This substantial volume is due largely to the complete mechanization of the shop and the frequent use of power tools.

Here's the way the shop operates. As the car is driven in, a service salesman steps up immediately, gets the trouble story, and writes out a work order. Mechanization enters here — almost at the first step — with the shooting of the work order carbons through a compressed air tube dispatcher directly to the parts department. They're there in five seconds. A mechanic

(Continued on page 80)

The new **V-8** that packs
a terrific **WALLOP!**



Studebaker's new type 120-horsepower
valve-in-head V-8 engine

Studebaker Commander



V-8

AMERICA'S NEW
WONDER CAR

Shop Kinks



\$25

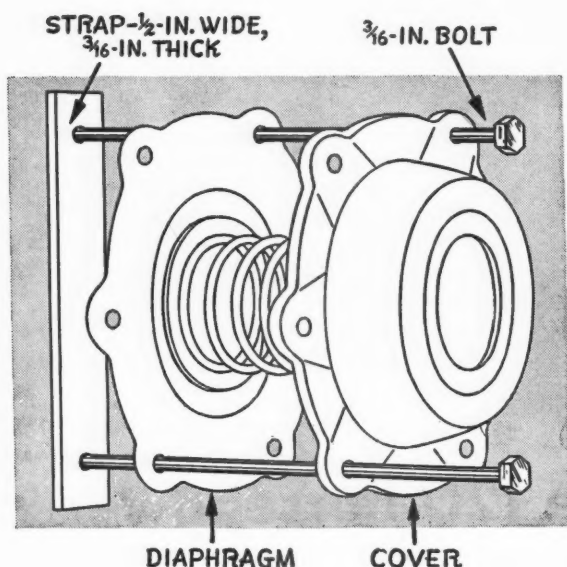
**FOR THE BEST KINK
PUBLISHED
EACH MONTH**

\$5

**FOR ALL KINKS
PUBLISHED
EACH MONTH**

If you've come upon an original idea for making a job easier, a special tool, short cut on a job or any trick of value to other readers, write it down and, if necessary, make a rough sketch. Just make it clear. Send it to Motor Age. If we can use your Kink it may bring five, possibly 25 dollars.

Best Kink of the Month



A Short Cut on Powerglide Jobs

We have a method for replacing the modulator diaphragm on Chevrolet Powerglide cars without removing the transmission. Remove the modulator housing and diaphragm from the side. Use a small piece of strap iron $\frac{1}{2}$ inch wide and $\frac{1}{16}$ inch thick. Put it over the diaphragm to hold it against the modulator housing. Then drill two $\frac{3}{16}$ inch holes in this and insert two $\frac{3}{16}$ inch screws $\frac{3}{4}$ inch long. Use the screws to keep the diaphragm from getting turned so the screw holes will line up with the modulator housing. Assemble the parts and insert into place. Insert the screws enough to hold. Slip the strap out from behind the diaphragm, then tighten the screws. *George Alexander, Winter Chevrolet, Inc.*

Remove Hudson Hood Squeak by Filing the Catch

To eliminate the annoying hood squeak on all 1948 Hudsons, file a half circle across the front of the safety catch where it strikes the opening for it in the hood. Ten out of ten latches we have found to have been fixed by wrapping the friction tape around the latch

which does not prove satisfactory. We use a rat tail file and can do the job in about sixty seconds. *Dale Batinovich, c/o Sam's Automotive Service, San Jose, Calif.*

Horn Relay in Starter Circuit Saves Push Button

We have had some trouble with burned out starter push buttons.

We have found that this trouble is caused by the high current draw necessary to engage the solenoid at the starter. We have eliminated this trouble completely by installing a regular horn relay to handle this current, relieving the push button of this load. We mount the horn relay as near as possible to the starter, usually on the firewall
(Continued on page 60)



YOU'RE THE DOCTOR

...with Perfect Circle's

2 in 1 Chrome Piston Ring Set

Every set offers a choice of spring pressures!

Now—for the first time—mechanics can choose the spring pressure best suited to every engine without switching between various brands or types of rings!

Only Perfect Circle's 2-in-1 Chrome Set offers a choice of spring pressures! Two expander springs—a **NORMAL PRESSURE** Spring for resleeved, re-bored and slightly worn engines, and a **HIPRESSURE** Spring for badly worn engines—are packed with each Chrome Oil Stopper.

The 2-in-1 Chrome Set more than doubles the life of cylinders, pistons and rings, because solid chrome plating on top compression rings and the steel rails of the oil rings assures twice the life of ordinary ring sets! Yes, for double service, double life, sustained power and new economy—specify 2-in-1! Perfect Circle Corporation, Hagerstown, Indiana.

Steel rails plated with Solid Chrome. Alternate HiPressure Spring packed with each Chrome Oil Stopper for positive oil control even in badly worn engines.

PLATED WITH SOLID CHROME

Perfect Circle

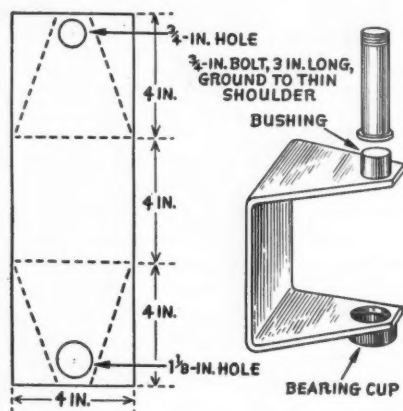
The Standard of Comparison



with self tapping screws. Run a #10 wire from the battery terminal on the starter solenoid to the battery terminal on the relay. Next run the #10 wire from the horn terminal on the relay to the switch terminal on the solenoid. Switch on the push button wire which has been removed from the solenoid. Then it is connected to the horn button terminal on the relay. On Cadillacs, remove the short push button wire from the ignition switch and secure it to a good ground. If the ignition switch protection is desired in Cadillacs, a 1951 Buick starter relay should be used and the ground made at the relay. On others remove the short push button wire from the ammeter and connect to the ground. *William E. Alderson, 442 Pine Street, Modesto, California.*

Small Press Helps to Service Universal Joints

I made a small press to service 1949 or later Ford universal joints,



or any joint employing a bushing and lock, of which there are plenty. I use a bench vise for power.

After the driveshaft is removed, set the press in the vise. Remove all the lock rings. Press the first bearing through as far as the yoke will permit into the large cup of the press. Then remove this bearing and turn the joint over and press the yoke through. The yoke can now be tipped and removed. Use the vise to reassemble.

This makes a tough job easy

and one man can service both joints in thirty minutes. *Jack Harrison, Osceola, Neb.*

Repairing Dead Wiper Motors on '49-'51 Chevrolets

Remove the valve mechanism cover and gasket and, using needle nose pliers, lift out the top of the kidney valve. Then measure the distance from the top of the brass pipe to the base of the wiper head. If this distance exceeds $\frac{1}{8}$ in., drive the pipe down so it will protrude $\frac{1}{8}$ in. Replace the kidney valve, the cover and the gasket. Install the wiper in the car and it should work properly. *Lester E. Worner, Wheaton Auto, Wheaton, Mass.*

Special Tool for Removing Pistons

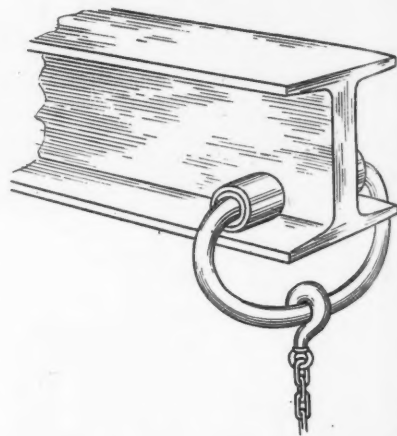
A quick way to restore Ford steel sleeves to their original shape so the pistons will come out easily, is to take an old Ford axle housing, No. 68-4011 and cut a piece off the housing six inches long so that the small tapering end will just start in the sleeve. Grind off the electric weld seam. Then take the hammer and drive down until the sleeve is restored to the original position. Knock the piece of housing from side to side, then pull out. The piston will come out easily. *Ray Grauss, Medina Garage, Medina, Tenn.*

Repairing Door Catch Eliminates Rattle on Ford

I have found a very good way to stop door rattles caused by worn door catches on '49 Fords. Remove the door catch and, with a welding outfit, build up the mound on the catch approximately $\frac{3}{32}$ inch. Then dress the weld to fit the latch before re-installing the catch. This job can be accomplished in about 20 minutes and with a little touch-up paint the job can be made to look original. *John Koppenhaver, J. C. Hess Garage, W. Chocolate Ave., Hershey, Pa.*

I Beam Trolley for Use with Chain Hoists

When you need a trolley for your chain hoist, but can't get one at the time, here's a substitute that



serves the purpose. Make hooks out of an old style propeller or axle shafts. Cut the shaft to the proper length, heat and shape as shown, then close them over the flange while hot. A couple of old double row ball-bearings on the ends would make it easier to move. *L. A. Rall, Galesville, Wis.*

Cone Made of Shim Stock Protects Seal from Splines

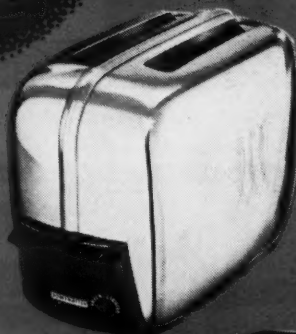
On many cars there is a leather grease seal around the steering gear cross shaft. When installing a new seal the splines on the cross shaft will cut the new seal. A piece of .005 in. shim stock that is rolled in a cone the right size, turned, soldered and slipped over the splines will protect the seal. *Charles Lodge, 1540 Pine Street, San Francisco, Calif.*

Installing Radiator on '46 and '47 Hudson

To make it a one man job of installing a radiator on the '46 and '47 Hudson, take two pieces of the old radiator hose and make mounting pads out of them. Discard the old pads, then take a pocket knife and cut a slit in the pads just large enough to allow radiator bolts to be forced through them. Push the bolts up through the frame and force the pads down over them. This will hold the bolts up in place while you carefully set the radiator down on them. *Joe Broadway, 4021 So. 12th St., Tucson, Arizona.*

How To WIN GIFTS LIKE THESE

WITH **fendix®**



"LOVE THAT FENDIX" say Dealers and Service Managers...

Dealers everywhere are switching to FENDIX. Its wonderful merchandising award plan keeps service men and salesmen plugging for undercoating sales... bringing in extra profits of \$15 to \$20 per car. Dealers prefer FENDIX too, because each drum contains more solids... more cars are undercoated per drum. And dealers find that FENDIX reduces free labor time on new car squeaks and rattles, as well as giving them cars with a higher re-sale value when customers come around to trade.

Service managers "love" FENDIX because there are over 5,280 gifts to be earned for using FENDIX. Home furnishings, sports equipment, television sets... almost anything you name can be earned by using FENDIX. What's more, your men like FENDIX because it sprays freely and easily... doesn't foul up equipment... goes on in a continuous, uniform coating. FENDIX men train service men how to use FENDIX best. They stay on the job until service men do a job quickly, efficiently and easily.



P. S. to dealers:

Get the facts and you'll switch to FENDIX, too. Contact your nearest jobber or write direct. Why not do it now?



P. S. to service managers:

Get the facts on FENDIX and start earning those wonderful gifts. Contact your nearest FENDIX jobber or write direct. Why not do it now?



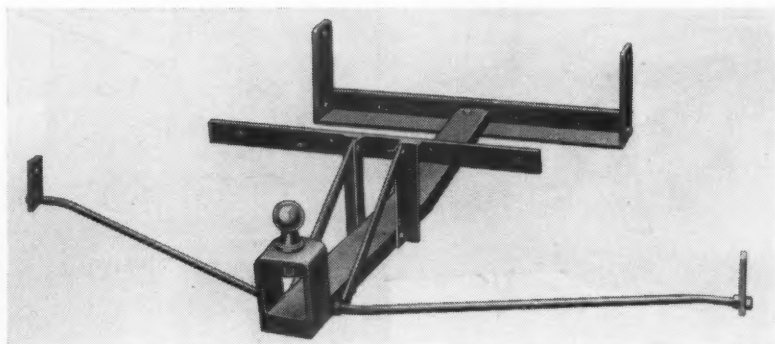
NOX-RUST CHEMICAL CORPORATION

2433 S. HALSTED STREET, CHICAGO 8, ILLINOIS
EASTERN DIVISION, 201 DAVISON CHEMICAL BUILDING, BALTIMORE 1, MARYLAND
WESTERN DIVISION, 725 SECOND STREET, SAN FRANCISCO 7, CALIFORNIA



NEW PRODUCTS

FOR FURTHER INFORMATION USE

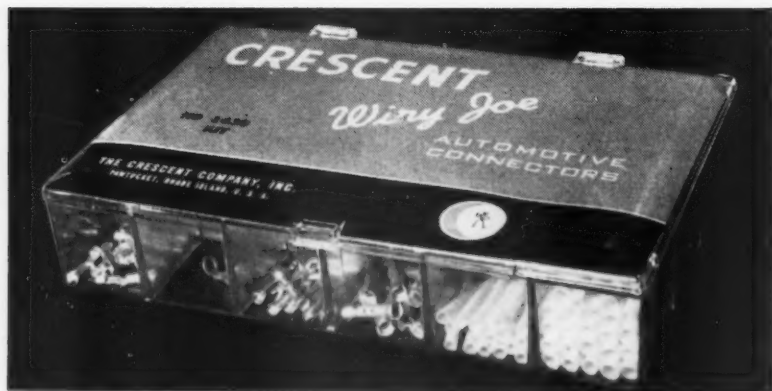


▲ 335. Heavy Duty Trailer Hitch

Elkhart Welding & Boiler Works is marketing the bolt fast car-hitch, designed for towing heavy trailer coaches. The hitch is of the bolt-on type, requiring no drilling of holes, welding or burning, and it is offered in aluminum or chrome finish. It is custom made to fill all postwar cars, according to the manufacturer.

▼ 336. Solderless Connector Kit

Crescent Company is introducing a new kit containing a complete assortment of "Wiry Joe" solderless automotive connectors. The kit is furnished in a transparent plastic display cabinet with twelve compartments including the solderless terminals and the special Crescent Tool for installing the connectors.



▼ 337. Wheel Balancer

Bear Manufacturing Co. announces the "Perfect 36" Wheel Balancer. A full view dial mounted in a recessed panel with two other controls are claimed to provide four-way balancing performance. The dial with a sweep hand shows the amount of unbalance in the wheel



down to a fraction of an ounce and indicates the speed at which the balance occurs. The speed indicator also shows the customer "perfect balance" at speeds up to 100 mph. The machine shows the proper location to add weight; and is adjustable to various size assemblies for maximum sensitivity.

SHOW WINDOW

POSTCARD FACING NEXT PAGE



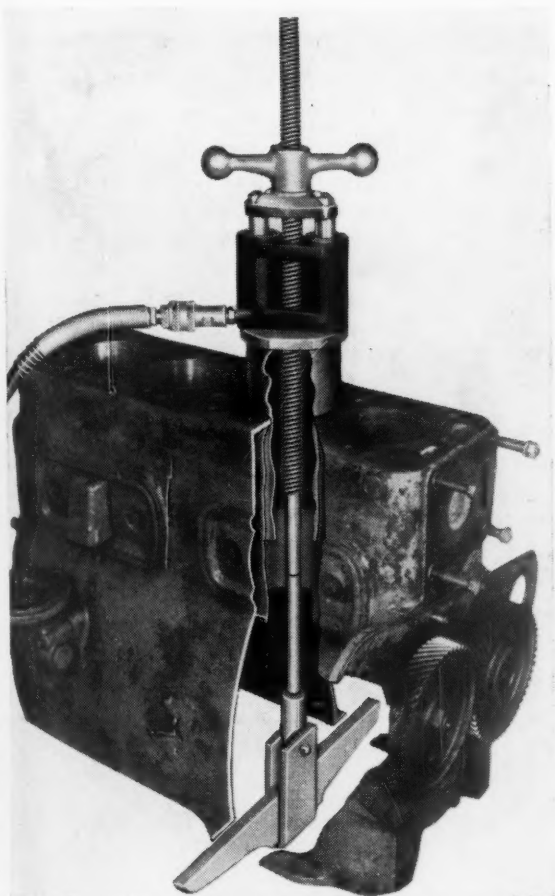
▲ 339. Key Cutting Machine

Kent-Moore Organization, Inc., announce a portable key cutting machine to duplicate auto and truck keys by code number with or without a pattern key. Known as the Handee Auto Key Punch, the device weighs 2½ pounds and comes with all accessories needed to do the job.

▼ 340. Automotive Battery

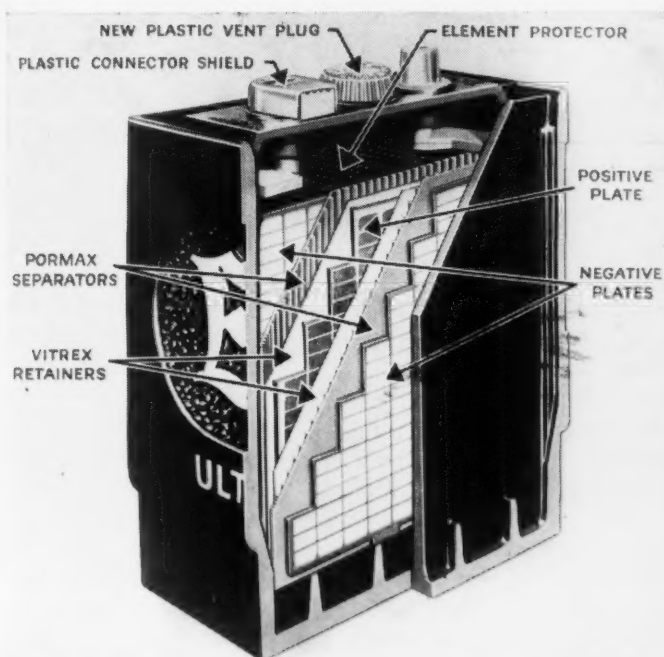
The Electric Storage Battery Company has developed the Exide Ultra Start, a new automotive battery. The manufacturer states that this new unit should give many more years of service than previous batteries. Contributing to the longevity of the Ultra Start battery are Silvium, a corrosion resisting grid metal; a high capacity active material; a low specific gravity electrolyte; and the recently announced Pormax plastic separator.

(Continued on page 64)



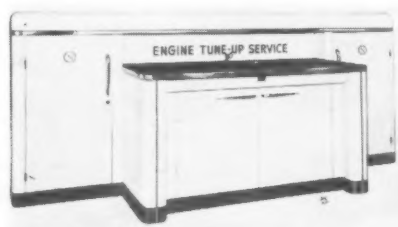
▲ 338. Sleeve Pulling Set

Owatonna Tool Company announces a special sleeve pulling and installing set as part of its Power-Twin Hydraulic Pulling System. The set will pull and install cylinder liners on more than 200 different makes and models of trucks, tractors and power units. It removes and installs sleeves from 3 in. to 6 in. OTC Sleeve Pullers may be adapted to the Power-Trim Unit by adding only a few parts.



341. Service Cabinet

Natkin & Company is manufacturing the "Low Boy" service merchandiser, a 9 ft. long x 4 ft. high unit with a 60 in. Nat-Flex bench top. The Nat-Flex fracture proof, pressure bonded work bench top



is plastic sealed to resist damage by oil, grease or water. It is a non-conductor, thus being safe for electric tools, and will not interfere with electrical or magnetic testing equipment. Each locker in the merchandiser has two adjustable shelves, and a swing away parts washer is provided with a drain basket. Sockets are available for right to left hand installation. The recessed doors allow ample toe and knee room. A heavy duty duplex electric receptacle is mounted on the cabinet. A choice of standard departmental lettering is included.

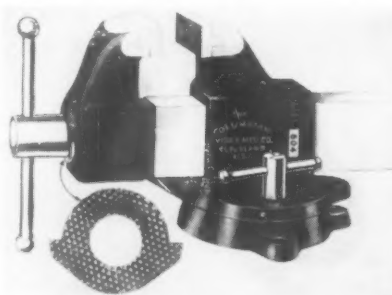
342. Oil Additive

Mill River Products, Inc., has developed "Liqui-Moly," a new lubricant based on the metal molybdenum. The molybdenum is in an extremely finely-divided dry solid form, suspended in a compatible liquid so that it looks and can be handled like any conventional oil. It is poured into the crankcase and carried to the bearing-surfaces in the flow of oil, where it "plates out" on the working surface. It is held there by molecular attraction which, the manufacturer states, can only be completely removed by grinding. It is claimed that "Moly" film cannot be "squeezed out" by any amount of pressure or heat, and therefore the bearing-surfaces are always protected. Liqui-Moly is said to reduce temperatures, reduce frictional drag and wear,

provide safe and break-in of new engines and ring jobs at high speeds and protect bearings from scoring or seizure in event of accidental loss of oil or radiator water.

343. Machinist's Vice

The Columbian Vice & Manufacturing Company have an improved line of malleable iron machinists' vises. The feature is the use of the new type graphite-bronze self-lubricating thrust bearing located at the front of the sliding jaw. This absorbs the thrust of the steel screw head, and provides positive operation at the same time preventing wear and eliminating end play. Another feature consists of steel ball



handle ends which are forged from the handle stock itself. The vises are made in all standard size 3 inch to 8 inch jaw widths.

344. Power Sockets

Bonney Forge & Tool Works announce a complete line of power sockets which has been added to their line. The precision broached sockets are available in regular length with double square sockets for $\frac{1}{2}$ inch drive. To meet the all purpose requirement where bolts run longer than the normal length of the nut, single hexagon, bolt clearance, length power sockets are available in $\frac{1}{2}$ inch and $\frac{3}{4}$ inch square drives. The sockets are made from selected alloy and specially treated to withstand rugged use.

345. Miniature Catalog

Bennett Pump Division of the John Wood Company is publishing a new 56-page miniature catalog,

featuring a picture thumb index, designed to enable quick location of any of the sections covering the entire line of Bennett gasoline pumps, Eco automatic tireflators, Islander air-water units and small dispensing pumps.

346. Nameplates

Metalcraft, Inc., is manufacturing "Autographs," metal nameplates individually designed for retailers. The adhesive back autographs can be permanently mounted on any grease free surface, whether flat or curved. They are lithographed in red and black ink or chrome plated metal. Autographs are made in two sizes, $1\frac{3}{4}$ by $1\frac{3}{32}$ inch or $2\frac{3}{8}$ by $\frac{9}{16}$ inch. The nameplate can be ordered in quantities of one hundred or more.

347. Portable Welder

The Precision Welder Mfg. Co. has added a new Shop-King welder to its line. The general (Model 25A) features six heat stages, has 20 to 100 amp. output, welds 24 gage to $\frac{3}{16}$ inch thick, and handles rods $\frac{1}{16}$ to $\frac{1}{8}$ inch. This portable welder is designed for light production, fast maintenance and repair welding.

348. Window Vent Shade

The Auto Ventshade Co. has developed a Ventshade especially for "hard-tops," such as the Coupe de Ville, Bel Air, Victoria and so



forth. This device is claimed to eliminate rain leakage, add ventilation during a storm and increase shade. The shade is made of chrome plated stainless steel.

(Continued on page 66)

HERE'S HOW TO GET

Free Information

Here is a recap of the New Products described in this issue, along with their code numbers.

On each of the postage-paid postcards below you can request further data on items described in this New Products section. Fill out one of the sections completely for each item in which you are interested.

- 335. Traller Hitch
- 336. Connector Kit
- 337. Wheel Balancer
- 338. Sleeve Puller
- 339. Key Machine
- 340. Battery
- 341. Service Cabinet
- 342. Oil Additive
- 343. Machinist's Vise
- 344. Power Sockets
- 345. Miniature Catalog
- 346. Nameplates
- 347. Portable Welder
- 348. Vent Shade
- 349. Shop Manual
- 350. Fuel Regulator
- 351. Brake Catalog
- 352. Brake Bleeder
- 353. Engine Analyzer
- 354. Drain Valve
- 355. Brake Service Deal
- 356. Terminal Lifter
- 357. Car Watch
- 358. Front End Chart
- 359. Grinder Catalog
- 360. Lining Catalog
- 361. Shackle Jack
- 362. Thermostats
- 363. Tool Chest
- 364. Relining Folder
- 365. Tune-up Tester

USE THESE POSTCARDS

<div style="text-align: right; font-weight: bold;">8/51</div> <div style="text-align: center;"><input type="checkbox"/></div> Name Title Company Co. Address Chilton's MOTOR AGE, Phila. 39	<div style="text-align: right; font-weight: bold;">8/51</div> <div style="text-align: center;"><input type="checkbox"/></div> Name Title Company Co. Address Chilton's MOTOR AGE, Phila. 39
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New Products Show Window

Continued from Page 64

349. Shop Owner's Manual

Allen Electric & Equipment Co. is publishing a manual entitled "How to Operate a Profitable Service Department." The purpose of this manual is to furnish shops with a guide and instruction for equipping and operating a complete department for testing, adjusting and repairing the various

units and wiring which make up the battery, regulator and generator circuits. The manual contains over 100 pages and over 60 illustrations. The first section covers setting up a department, its functions and possibilities; the second section contains detailed instructions for fast and accurate locations of electrical system fail-

ures through a systematic method of diagnosis; complete regulator and generator testing are covered in the third section; section four shows how to adjust and repair generators; section five contains complete factory specifications for regulators and generators.

350. Fuel Regulator

The Schneider Carburetor Company announced development of a new fuel pressure regulator, applicable to all cars and trucks, which it claims eliminates gasoline waste due to excessive fuel pump pressure. The device is installed in the gasoline fuel line between the fuel pump and the carburetor. It reduces fuel pressure and evens fuel pump pulsations of gasoline in the fuel line, according to the firm, making the flow of gasoline more uniform and constant when it enters the carburetor. The fuel pressure regulator fits any modern car and its pressure to the carburetor is preset at the factory. No adjustments are necessary.

351. Brake Catalog

South Gate Brake Specialties Co. have released Catalog 151 illustrating, describing and pricing their complete line of brake products. New items shown in the catalog are the Rocket Hydraulic Brake Booster, "C" Washers, and Filcoolator Oil Heat Exchanger and Filter. These items are in addition to their regular line of Chrysler-type Brake Shoe Anchor Bolts, Brake Cable Adjusters, and Ford and Chevrolet Brake Energizers.

352. Brake Bleeder

C. F. Patrick has developed the Patrick Better Brake Bleeder, a device which is said to shorten bleeding time to one minute for each wheel cylinder. The bleeder has been designed for use on hydraulic brake system using the open end nipple type wheel cylinder valve. It is held in one hand while the liquid flowing from the cylinder is kept clean and the system sealed against the re-entry of air into the lines.

(Continued on page 102)

FIRST CLASS
PERMIT No. 18
Sec. 149, P. L. & R.
Philadelphia 39, Pa.

BUSINESS REPLY CARD

No postage stamp necessary if mailed in the United States

POSTAGE WILL BE PAID BY

Chilton's MOTOR AGE

Chestnut and 56th Sts.

Philadelphia 39, Pa.

Attention: Frank P. Tighe, Editor

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Chestnut and 56th Sts.

Philadelphia 39, Pa.

Attention: Frank P. Tighe, Editor



Chilton's MOTOR AGE

Flat Rate and Service Manual

S e r v i c e S u g g e s t i o n s

The information presented here has been compiled from the Factory Service Bulletins, as an additional service of Chilton's Motor Age Flat Rate and Service Manual Department.

Selected by William H. Lutton
Assistant Editor
Chilton's Motor Age Flat Rate and
Service Manual

Steering Column Tube Noise On 1951 Studebaker

It has been found, on some of the early 1951 Commander and Champion models, that the felt insulator at the base of the steering column tube could get out of its proper place, which would permit cold air and engine fumes to get up inside of the body.

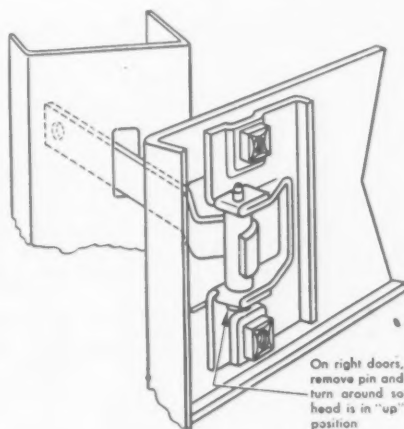
You can correct this condition as follows: Tape over the large access hole at the top of the tube between the dash and the instrument board with a good grade of masking tape.

Door Check Link Support On Chevrolet Cars

Some cases have been reported from the field where the door check link support pin has worked out just on the right doors. In the following up of this complaint, it was found that the door check link support, Part No. 4561013, is interchangeable on both right and left front and rear doors of all 1949 through 1951 closed body styles and station wagons.

Inspection of the part in ques-

tion indicated that when it was installed on a right door the head of the pin which holds the roller was down and that it could work out during the operation of the mechanism. As a result of these findings, a staking operation has been added on the end of the pin opposite the head, and the pin diameter has also been increased to provide additional strength.



In the field, if replacement is required on right doors, the part should be checked to make sure that the pin is staked. If it is not staked, the pin should be removed and inserted with its head up when it is installed in the hinge pillar.

Modification of Torque Tube Bushing Remover

Due to a change in the size of the 1951 Chevrolet propeller shaft housing diameter, it is now necessary to adapt your bushing remover for use on both sizes.

Your torque tube bushing re-

mover tool No. J-4258 was designed for the removal of the pressed-in type propeller shaft bushings on late 1950 model passenger and 1/2-ton trucks. Now with the introduction of the 1951 models, the propeller shaft housing diameter has been increased with a subsequent increase in the O.D. size of the bushings. As a result of this increase in size, your tool designed for 1950 bushing removals is too small on the sleeve I.D. and where tool usage is attempted on 1951 models, a definite interference is encountered.

To adapt this tool so that it may be used for both 1950 and 1951 models it is only necessary to grind the I.D. of the sleeve .040 in. over its present I.D. of 1 3/4 in.

New Wiring Arrangement on Nash Overdrive Governor

Beginning at car serial number D-30452, K-472762 and R-624779 on the 1951 series, the overdrive governor to the lockout switch wire is being installed underneath the rubber boot and is located to the lower side of the governor. Then it passes underneath the overdrive case to the lockout switch. To insure a uniform location of the wire, wire the clip Part No. 3125218 is being installed on the lower overdrive case screw.

This new method of installation also provides a vent for the boot.

If the governor fails due to condensation shorting out the circuit, remove the cover and dry out the interior with compressed air.

Current Engine and Tune-up Specifications

ENGINE										TUNE-UP DATA										STEERING				
MAKE AND MODEL	Wheelbase (in.)	No. of Cylinders, Bore and Stroke	Taxable Hp.	Piston Displacement (Cu. In.)	Maximum Brake Hp. (With Bare Engine)	Compression Ratio	Compression Pressure at Cranking Speed (Lbs.)	Spark Plug Make and Type	Rings		VALVES				IGNITION		Cooling System Capacity (Qts.)	Rods Removed From Refill (Qts.)	Caster (Deg.)	Camber (Deg.)	Toe-In (in.)	King Pin Inclination (Deg.)		
									No. and Width	No. and Width	Seat Angle	Stem Diameter (in.)	Operating Tappet Clearance	Inlet Valve Timing	Timing	Breaker Point Gap							Spark Plug Gap	Timing Marks
Buick Special 40	121 1/2	8-3 1/2x4 1/2	32.5	263.3	120-3600	6.6	114	AC-46X	2-3/8	2-3/8	45	45	HA	HA	13BT	None	.015	.025	4BT	Fly	12	1 1/2	4 1/2	
Buick Super 50	121 1/2	8-3 1/2x4 1/2	32.5	263.3	124-3600	6.9	118	AC-46X	2-3/8	2-3/8	45	45	HA	HA	13BT	None	.015	.025	4BT	Fly	12	1 1/2	4 1/2	
Buick Roadmaster 70	126.2	8-3 1/2x4 1/2	37.8	320.2	152-3600	7.2	120	AC-46X	2-3/8	2-3/8	45	45	HA	HA	14BT	None	.015	.025	4BT	Fly	18	1 1/2	4 1/2	
Cadillac 61, 62, 60	146 1/2	8-3 1/2x3 3/4	46.5	331.0	160-3600	7.5	120	AC-46-5	2-3/8	2-3/8	44	44	HA	HA	24BT	None	.015	.035	5BT	VD	18	1 1/2	5 51'	
Cadillac 61, 62, 60	146 1/2	8-3 1/2x3 3/4	46.5	331.0	160-3600	7.5	120	AC-46-5	2-3/8	2-3/8	44	44	HA	HA	24BT	None	.015	.035	5BT	VD	18	1 1/2	5 51'	
Chevrolet Six, JJ, JK	115	6-3 1/2x3 3/4	29.4	216.5	92-3400	6.6	110	AC-46-5	2-1/2	2-1/2	1-188	30	45	HA	HA	18T	Fly	.021	.035	5BT	Fly	15	1 1/2	4+30'
Chevrolet Six, JJ, JK	115	6-3 1/2x3 3/4	30.4	235.5	105-3600	6.7	110	AC-46-5	2-1/2	2-1/2	1-188	30	45	HA	HA	18T	Fly	.021	.035	5BT	Fly	15	1 1/2	4+30'
Chrysler C-51	**	6-3 1/2x3 3/4	28.3	250.6	116-3600	7.0	135	AL-AR-8	2-3/8	2-3/8	45	45	HA	HA	15BT	VD	.015	.035	2BT	VD	5	1 1/2	5 to 6 1/2	
Chrysler C-51-8	**	6-3 1/2x3 3/4	28.3	250.6	116-3600	7.0	135	AL-AR-8	2-3/8	2-3/8	45	45	HA	HA	15BT	VD	.015	.035	2BT	VD	5	1 1/2	5 to 6 1/2	
Crosley Four, CD, VC	80, 85	4-2 1/2x2 1/2	10.0	44.0	25.5-5400*	8.0	125	CH-J8	2-3/8	2-3/8	2-155	45	45	HA	HA	18T	VD	.020	.035	2BT	VD	2	1 1/2	6 1/2
De Soto Six, S-15	125 1/2	6-3 1/2x4 1/2	28.3	250.6	116-3600	7.0	135	AL-AR-8	2-3/8	2-3/8	45	45	HA	HA	1010H	VD	.020	.035	2BT	VD	5	1 1/2	5 to 6 1/2	
De Soto Six, D-41, D-42	123 1/2	6-3 1/2x4 1/2	28.3	250.6	116-3600	7.0	135	AL-AR-8	2-3/8	2-3/8	45	45	HA	HA	1010H	VD	.020	.035	2BT	VD	5	1 1/2	5 to 6 1/2	
Dodge Six, D-41, D-42	123 1/2	6-3 1/2x4 1/2	28.3	250.6	116-3600	7.0	135	AL-AR-8	2-3/8	2-3/8	45	45	HA	HA	1010H	VD	.020	.035	2BT	VD	5	1 1/2	5 to 6 1/2	
Ford Six, 1HA	114	6-3 3/4x4 1/2	26.1	225.9	95-3300	6.8	110	CH-H10	2-3/8	2-3/8	45	45	HA	HA	11BT	VD	.025	.030	2BT	VD	4	1 1/2	5 1/4	
Ford Eight, 1BA	114	6-3 1/2x3 3/4	32.5	239.4	100-3600	6.8	110	CH-H10	2-3/8	2-3/8	45	45	HA	HA	11BT	VD	.025	.030	2BT	VD	4	1 1/2	5 1/4	
Ford Six, 515, 516	123 1/2	6-3 1/2x4 1/2	26.3	226.2	115-3650	7.3	120	AL-A5	2-3/8	2-3/8	45	45	HA	HA	10BT	VD	.020	.030	2BT	VD	5	1 1/2	4 1/2 to 5 1/2	
Henry J	100	4-3 1/2x3 1/2	15.6	134.2	68-4000	7.0	110	AL-AN7	2-3/8	2-3/8	45	45	HA	HA	10BT	VD	.020	.030	2BT	VD	4	1 1/2	4 1/2	
Henry J	100	4-3 1/2x3 1/2	15.6	134.2	68-4000	7.0	110	AL-AN7	2-3/8	2-3/8	45	45	HA	HA	10BT	VD	.020	.030	2BT	VD	4	1 1/2	4 1/2	
Hudson Pacemaker 4A	119 1/2	6-3 1/2x3 1/2	30.4	232.0	112-4000	6.7	120	CH-H8	2-3/8	2-3/8	45	45	HA	HA	7 18BT	Fly	.020	.030	2BT	VD	7	1 1/2	3 3/8	
Hudson Custom 5A-6A	123 1/2	6-3 1/2x3 1/2	30.4	232.0	123-4000	6.7	120	CH-H8	2-3/8	2-3/8	45	45	HA	HA	7 18BT	Fly	.020	.030	2BT	VD	7	1 1/2	3 3/8	
Hudson Hornet 7A	123 1/2	6-3 1/2x3 1/2	30.4	232.0	123-4000	6.7	120	CH-H8	2-3/8	2-3/8	45	45	HA	HA	7 18BT	Fly	.020	.030	2BT	VD	7	1 1/2	3 3/8	
Hudson Comm. 8-8A	123 1/2	6-3 1/2x3 1/2	28.8	254.0	128-4200	6.7	119	CH-H8	2-3/8	2-3/8	45	45	HA	HA	10 40BT	Fly	.017	.032	2BT	VD	7	1 1/2	3 3/8	
Kaiser Six, 511, 512	118 1/2	6-3 1/2x4 1/2	26.3	226.2	115-3650	7.3	120	AL-A5	2-3/8	2-3/8	45	45	HA	HA	10BT	VD	.020	.030	2BT	VD	5	1 1/2	4 1/2 to 5 1/2	
Lincoln IEL-1EH	118	8-3 1/2x4 1/2	39.2	327.0	154-3600	7.0	110	CH-H10	2-3/8	2-3/8	45	45	HA	HA	5BT	CP	.015	.027	4BT	CP	6	1 1/2	5	
Mercury ICM	118	8-3 1/2x4 1/2	32.5	255.4	112-3600	6.8	115	CH-H10	2-3/8	2-3/8	45	45	HA	HA	5BT	CP	.015	.027	4BT	CP	6	1 1/2	5	
Nash Rambler 5110	100	6-3 1/2x3 1/2	23.4	172.6	82-3800	7.3	120	AL-A5	2-3/8	2-3/8	45	45	HA	HA	6BT	None	.021	.030	2BT	VD	5	1 1/2	8	
Nash Statesman 5140	112	6-3 1/2x4 1/2	23.4	184.0	85-3800	7.0	120	AL-A5	2-3/8	2-3/8	45	45	HA	HA	6BT	None	.020	.030	2BT	VD	5	1 1/2	8 1/2	
Nash Amb. 5160	121	6-3 1/2x4 1/2	27.3	234.8	115-3400	7.3	130	AL-A5	2-3/8	2-3/8	45	45	HA	HA	6BT	None	.020	.030	2BT	VD	6	1 1/2	8 1/2	
Oldsmobile Super 88	119 1/2	8-3 1/2x3 3/4	45.0	303.7	135-3600	7.5	140	AC-46-5	2-3/8	2-3/8	45	45	HA	HA	13 1/2BT	None	.015	.030	2 1/2BT	CP	5	1 1/2	4 29 47"	
Oldsmobile Super 88	119 1/2	8-3 1/2x3 3/4	45.0	303.7	135-3600	7.5	140	AC-46-5	2-3/8	2-3/8	45	45	HA	HA	13 1/2BT	None	.015	.030	2 1/2BT	CP	5	1 1/2	4 29 47"	
Packard 200-2401	122	8-3 1/2x3 3/4	39.2	288.0	135-3600	7.0	110	CH-H10	2-3/8	2-3/8	45	45	HA	HA	15BT	None	.015	.027	4BT	VD	7	1 1/2	5 50"	
Packard 250 & 300	122	8-3 1/2x3 3/4	39.2	327.0	150-3600	7.0	110	CH-H10	2-3/8	2-3/8	45	45	HA	HA	15BT	None	.015	.027	4BT	VD	7	1 1/2	5 50"	
Packard 400-2406	127	8-3 1/2x4 1/2	39.2	327.0	155-3600	7.8	110	CH-H10	2-3/8	2-3/8	45	45	HA	HA	15BT	None	.015	.027	4BT	VD	7	1 1/2	5 50"	
Plymouth Six, P22, P23	120	6-3 1/2x4 1/2	25.3	217.8	97-3600	7.0	135	AL-AR-8	2-3/8	2-3/8	45	45	HA	HA	12BT	CP	.019	.034 1/2	2BT	CP	5	1 1/2	5 to 6 1/2	
Pontiac Six, S-15	120	6-3 1/2x4 1/2	30.4	238.2	96-3400	6.5	127	AC-45	2-3/8	2-3/8	45	45	HA	HA	15BT	VD	.022	.025	2BT	VD	5	1 1/2	4 3/4 to 5 1/4	
Pontiac Eight, 27	120	6-3 1/2x4 1/2	36.4	268.2	116-3600	6.5	127	AC-45	2-3/8	2-3/8	45	45	HA	HA	15BT	VD	.016	.026	2BT	VD	5	1 1/2	4 3/4 to 5 1/4	
Studebaker Six, 10G	115	6-3 1/2x3 3/4	21.6	169.6	85-4000	7.0	120	CH-H7	2-3/8	2-3/8	45	45	HA	HA	15BT	VD	.020	.025	2BT	VD	5	1 1/2	5 1/4	
Studebaker Six, 10H	115	6-3 1/2x3 3/4	21.6	169.6	85-4000	7.0	120	CH-H7	2-3/8	2-3/8	45	45	HA	HA	15BT	VD	.020	.025	2BT	VD	5	1 1/2	5 1/4	
Willis Six, 473	104	4-3 1/2x4 1/2	15.6	134.2	72-4000	7.4	135	CH-J7	2-3/8	2-3/8	45	45	HA	HA	1012C	VD	.020	.030	2BT	VD	4	1 1/2	5	
Willis Six, 673	104	4-3 1/2x4 1/2	23.4	181.0	75-4000	6.9	145	CH-J7	2-3/8	2-3/8	45	45	HA	HA	1012C	VD	.020	.030	2BT	VD	4	1 1/2	5	

Abbreviations

- * With Standard Accessories
- ** 125 1/2 - 130 1/2 - 145 1/2
- † 125 1/2 - 131 1/2 - 145 1/2
- ‡ At Plus or Minus 1 1/2"
- ▲ - Fly or Camber

Depression in Camshaft Gear

- Do not recommend using a dwell meter for checking point opening
- Used with Powerdrive transmission at extra cost.
- †† 250 Model = 122"; 300 Model = 127"
- ††† Model 61 - 122"; 62 - 120"; 60 - 130 in.

(a) - Top Ring 3/8"; Middle Ring 5/8"

- (b) - 121 in. for IEL model; 125 in. for Cosmopolitan model
- (c) - Upper Ring 3/8"; Lower Ring 1/2"
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ABBREVIATIONS
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 †—125 1/2" x 131 1/2" x 145 1/2"
 ‡—Plus or Minus 1/2"
 †—At 3/8" Camber
 A—Depression in Camshaft Gear
 *—Do not recommend using a dwell meter for checking point opening
 ‡—Used with Powerglide transmission at extra cost.
 ††—250 Model = 122"; 300 Model = 127".
 (a)—Model 61—122; 62—126; 63—130 in.
 (b)—121 in. for IEL model; 125 in. for Cosmopolitan model
 (c)—Upper Ring 1/8 in., Lower Ring 1/8 in.
 (d)—Top ring .063; bottom ring .125.
 (e)—D41 Fan Drive Pulley; D42 Vibration Damper.
 (g)—Top Ring 1/8; Middle Ring 1/8
 (k)—Auto-Lite A-3; AC46-5; Champion J-8.
 (r)—Upper Ring 1/8; Lower Ring 1/8.
 (s)—D41 = 115"; D42 = 123 1/2".
 (u)—P22 = 111"; P23 = 118 1/2".
 (v)—115 and 119 inches.
 (w)—Left side 3/8" to 1/2" higher than right.
 A—Rods removed from above
 CH—Champion Spark Plug Co.
 CP—Crankshaft Pulley
 DH—Distributor Housing Fly-Flywheel
 HA—Hydraulic Automatic Adjustment
 TC—Top Center TG—Timing Gears
 VD—Vibration Damper
 CC—Crankshaft and Camshaft Sprockets



"In 20 years ... I've seen lots of 'em come and go"

"Over the past 20 years I've seen them come and go . . . open a new service shop—make a go of it for a while, then go out of business. I believe lots of them made their mistake by not sticking strictly to Original Factory Parts. It's hard to keep your service work on a high level with parts that are just substitutes for the real thing. I'm glad I decided long ago to use only Original Factory Parts in my business."

M. David Robertson, 412 New Jersey Ave. N.W.,
Washington, D. C.

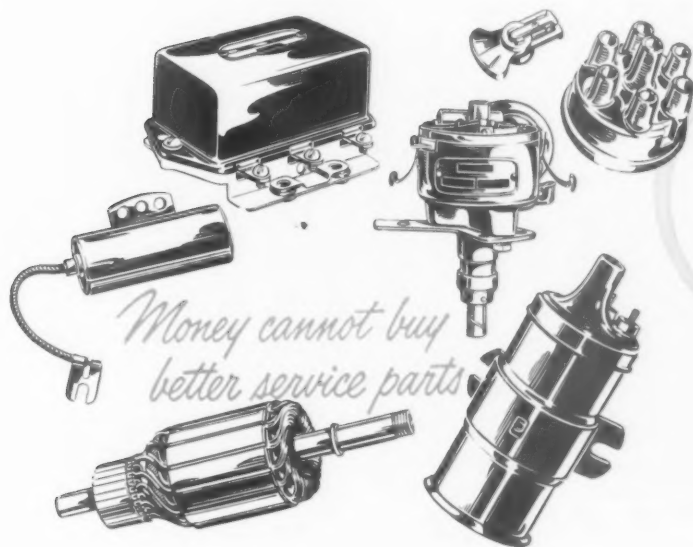
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Toledo 1

Parts & Service Division

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"Tested Quality" HELPS YOU DELIVER
AMERICA'S FINEST ELECTRICAL SERVICE

From blueprint to finished product, constant inspection and testing of all Auto-Lite Original Factory Parts assures quality of unfailing dependability . . . and is proven by exhaustive tests of leading automotive engineers who specify Auto-Lite as Original Factory Equipment on leading makes of many of America's finest cars and trucks.

ORIGINAL
AUTO-LITE
SERVICE PARTS

TUNE IN "SUSPENSE!" . . . CBS TELEVISION TUESDAYS

1951 New Passenger Car Registrations by Makes by States*

STATE		Buick	Cadillac	Chevrolet	Chrysler	Crossley	De Soto	Dodge	Ford	Henry J	Hudson	Kaiser-Frazer	Lincoln	Mercury	Nash	Oldsmobile	Packard	Plymouth	Pontiac	Studebaker	Willis	All Others	Total	
Alabama	May	418	75	1174	148	4	100	296	1256	73	53	34	22	332	109	227	36	632	349	201	30	5	5,574	
	5 Mos.	2113	364	6707	654	27	432	1365	5968	407	305	200	135	1421	478	1244	235	2871	1787	1086	130	44	27,973	
Arizona	May	164	35	554	79	3	18	78	369	21	39	13	11	106	46	142	18	216	130	100	16	12	2,170	
	5 Mos.	761	167	2171	237	24	122	409	1662	89	223	97	42	426	228	487	128	729	566	506	51	64	9,189	
Arkansas	May	157	32	524	58	1	44	117	491	32	26	17	5	113	40	106	9	326	109	82	16		2,305	
	5 Mos.	1286	242	4371	383	18	377	881	3297	250	284	226	66	807	360	820	161	2190	1145	629	151	6	17,950	
California	May	2739	896	7618	1504	24	847	1396	5896	199	708	185	208	2100	877	2130	368	3317	1983	1829	203	447	35,477	
	5 Mos.	14214	4811	36495	6820	138	4048	8543	29459	1307	3963	1223	1041	9983	5119	10454	2219	16865	11065	9146	861	2321	180,095	
Colorado	May	349	64	709	159	5	58	195	695	31	134	32	22	212	112	215	44	419	229	141	28	5	3,858	
	5 Mos.	2120	379	4268	746	55	355	1085	3518	172	813	168	147	1021	600	1158	289	2038	1306	664	165	23	21,090	
Connecticut	May	515	151	1192	245	15	157	457	978	136	142	90	31	414	162	452	108	873	446	303	37	62	6,966	
	5 Mos.	2657	782	6612	1145	47	685	2040	5011	666	741	436	180	1693	794	2208	583	3362	2186	1514	223	308	33,873	
Delaware	May	112	22	338	43	2	23	73	253	9	22	12	15	53	33	92	18	174	117	58	7	2	1,478	
	5 Mos.	615	126	1623	170	13	112	425	1490	77	127	77	48	301	136	477	71	629	595	389	34	16	7,553	
Dist. of Col.	May	132	54	540	76	1	56	136	330	25	35	10	15	88	33	131	19	415	130	58	3	13	2,807	
	5 Mos.	910	316	2759	448	6	223	782	1988	139	199	60	81	457	205	789	142	1990	862	355	33	83	12,320	
Florida	May	569	173	1495	231	52	121	513	1280	160	110	72	45	512	165	324	94	935	439	215	77	84	7,666	
	5 Mos.	3438	983	8412	1236	266	628	2157	7005	968	670	442	356	2499	820	2054	631	3923	3128	1222	463	652	41,953	
Georgia	May	612	118	1924	156	6	91	333	1624	107	88	84	34	417	102	352	59	809	520	246	36	12	7,730	
	5 Mos.	3394	598	10110	898	63	511	2018	8804	597	541	503	367	2615	604	1945	511	3879	3799	1795	241	136	43,929	
Idaho	May	117	27	286	47	2	14	76	226	17	48	23	18	72	58	90	26	129	96	97	15	2	1,478	
	5 Mos.	914	151	1963	261	4	195	477	1454	89	332	186	58	439	328	481	161	930	671	641	123	11	9,869	
Illinois	May	3075	744	7020	1343	26	834	2160	5687	280	1260	388	179	1625	1034	1986	490	4627	1993	1179	84	203	36,218	
	5 Mos.	14238	3198	32811	5159	136	3749	10102	24329	1351	6145	2214	855	7361	4545	9333	2609	19270	10055	5972	407	574	164,423	
Indiana	May	962	199	2987	416	23	327	680	2373	168	322	130	55	522	418	678	157	1807	796	907	64	10	13,981	
	5 Mos.	5592	1131	17168	2106	95	1543	3891	13029	928	1909	958	342	2746	2164	3805	969	8174	4912	5333	289	38	77,122	
Iowa	May	628	115	1926	306	6	158	525	1765	63	176	91	32	411	255	427	82	1124	485	344	23	1	8,554	
	5 Mos.	3359	594	10440	1359	25	759	2491	8554	290	781	582	161	2047	1146	2233	494	5011	2813	1595	113	6	44,853	
Kansas	May	604	98	1761	240	6	130	396	1499	95	136	79	25	445	240	373	74	909	468	296	21	7	7,886	
	5 Mos.	2735	466	7626	941	41	588	1748	6250	362	800	467	157	1739	1082	1619	417	3395	2138	1220	102	7	33,902	
Kentucky	May	325	61	1262	153	5	96	309	1071	40	66	28	15	196	148	257	52	570	313	188	29	2	5,178	
	5 Mos.	1916	381	6653	796	24	459	1545	5981	252	367	252	92	1050	675	1432	308	2960	1831	1061	163	24	28,178	
Louisiana	May	318	85	1250	152	2	93	265	1312	53	54	61	18	268	52	266	61	606	381	211	24	7	5,539	
	5 Mos.	1692	414	6591	659	27	481	1252	5465	315	262	324	103	1103	312	1164	257	2861	1758	1047	130	15	26,252	
Maine	May	143	35	507	58	5	54	130	338	43	43	22	9	97	57	115	20	294	144	66	15	3	2,198	
	5 Mos.	962	202	2415	324	21	240	662	1758	142	209	140	70	470	291	670	120	1312	739	399	98	19	11,283	
Maryland	May	448	90	1411	247	8	131	367	1268	113	168	54	31	316	151	306	81	898	389	222	30	22	6,750	
	5 Mos.	2391	482	8390	1166	38	628	2010	6341	651	848	308	172	1523	850	1795	497	4008	2124	1281	152	98	35,753	
Massachusetts	May	927	203	2460	467	27	413	807	1969	128	251	114	80	575	330	1083	124	2052	924	489	39	73	13,555	
	5 Mos.	4885	1184	13355	2161	99	1763	3890	10403	605	1336	552	349	2917	1651	5071	795	7761	4552	2433	308	310	66,370	
Michigan	May	2456	591	7272	863	11	573	1715	7232	296	535	266	155	1489	646	1837	290	3549	2115	912	77	27	32,907	
	5 Mos.	13353	4043	38151	4082	54	2722	7753	35641	1817	3356	1849	750	7406	3013	8904	1802	15799	12785	4130	327	83	167,800	
Minnesota	May	635	122	2109	380	4	160	478	1354	32	200	69	20	196	46	153	24	498	193	155	13	4	3,796	
	5 Mos.	4291	751	11658	1846	17	1206	3280	9590	440	1018	901	211	2164	1227	2516	752	6162	3465	2206	154	44	53,929	
Mississippi	May	292	54	937	117	2	52	154	793	41	25	29	10	196	46	153	24	498	193	155	13	4	3,796	
	5 Mos.	1665	290	4821	543	17	288	895	3685	240	181	173	77	808	249	809	162	2198	1137	689	74	14	18,975	
Missouri	May	983	237	3805	475	5	368	741	2959	116	182	121	72	882	571	778	147	2021	844	447	42	17	15,813	
	5 Mos.	4649	925	16025	1847	42	1476	3127	11538	455	839	594	260	3189	2271	3070	745	7948	3785	1907	224	49	64,965	
Montana	May	146	37	486	77	3	53	111	430	11	81	28	9	84	44	117	34	245	128	103	42	1	2,267	
	5 Mos.	854	175	2555	350	4	204	575	1988	84	421	112	50	465	217	663	167	1039	733	461	136	5	11,254	
Nebraska	May	377	80	913	188	4	66	236	977	20	90	30	18	255	74	209	58	631	302	160	20	1	4,709	
	5 Mos.	2181	404	5565	816	25	340	1063	5042	125	549	271	115	1269	462	1178	345	2763	1822	868	108	10	25,321	
Nevada	May	29	14	88	27	1	11	16	59	8	3	4	29	4	22	5	47	23	21	5	1		417	
	5 Mos.	215	82	482	136	4	53	159	419	14	60	23	21	156	38	153	77	280	144	159	22	2	2,699	
New Hampshire	May	54	11	195	24	14	49	137	16	28	7	4	36	29	54	11	102	66	34	7	2		880	
	5 Mos.	623	102	1973	199	12	107	446	1267	119	227	127	39	345	261	431	124	798	580	322	94	40	8,236	
New Jersey	May	1245	361	2968	710	23	430	1389	2727	272	354	191	79	918	395	984	261	2341	1296	632	112	83	17,771	
	5 Mos.	6655	1780	15832	2919	87	1712	5770	13034	1509	2032	1324	429	4149	1818	4869	1425	8185	6120	3041	588	386	83,664	
New Mexico	May	118	27	277	48	4	24	57	229	18	31	11	9	82	35	80	23	130	97	84	13	2	1,399	
	5 Mos.	801	130	1785	254	22	151	393	1260	71	214	70	55	448	177	470	114	701	582	393	67	6	8,164	
New York	May	3067	816	7317	1667	40	1424	3225	5738	496	721	477	204	1847	974	2623	603	5486	2743	1332	238	275	41	31,311
	5 Mos.	17278	4528	36527	7405	202	5632	14365	29822	2774	4151	2889	1134	8708	4716	12913	3216	19588	14350	6956	1399	1544	200,097	
North Carolina	May																							

For extra miles in heavy-duty truck service...

Sealed Power

PAX Pistons and Assemblies

SEALED POWER PAX PISTON—Lo-Ex* virgin aluminum alloy with silicon base, which dissipates heat better. Special Eboniting process assures smoother-running engine, because piston surface is oil-impregnated, oil-absorbing. T-slot design, cam ground, with rugged internal design for extra strength and most efficient heat transfer.

SEALED POWER SLEEVE—uniformly machined from castings with unusually fine grain and dense molecular structure for extreme wear-resisting qualities.

SEALED POWER GI-60 CONTRACTING GROOVE INSERT—Puts spring-steel armor plate at point of greatest wear, the top ring groove. The only piston on the market in which this section can be replaced for a few cents.

SEALED POWER RING SET—Sealed Power Piston Rings, specifically engineered to do the best possible job in the make and model specified.

SEALED POWER PISTON PIN—Sealed Power Double Lapped Piston Pins of special analysis steel are triple heat-treated, and tested for hardness. Each pin is individually fitted to its own PAX Assembly.

*Registered trade mark of Aluminum Co. of America.

All matched for peak performance

Write for name of nearest distributor
SEALED POWER CORPORATION
MUSKEGON, MICHIGAN



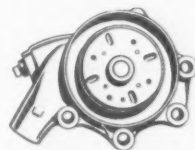
Always use Sealed Power parts for best results



HEAVY DUTY PISTONS—Aluminum or cast iron as indicated; exclusive T-slot design, cam ground, ruggedly designed, heat treated. Equal to or better than original equipment.

WET OR DRY SLEEVES—Machined from closely controlled castings, with exceptionally fine grain and dense molecular structure for long wear.

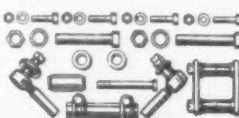
VALVES—Sealed Power Valves and valve parts are made from the correct grade of chrome nickel alloy steel for each engine, for finest performance and maximum service.



WATER PUMPS—Manufactured from finest quality materials to highest standards. Our line is complete.



KING BOLTS & BUSHINGS—Manufactured from highest quality forgings, and heat treated to meet your exact requirements.



TIE RODS & SHACKLES—Sealed Power Tie Rods, Spring Shackles, and Front Wheel Suspension Parts meet specifications of original equipment.

Incentive Plan Continued from Page 46

paid for doing so, he is more alert in this respect.

But why should the stockmen be included in the plan?

"Our stockmen," said Walter Jones, general sales manager, "are important factors. When our counter-men have an order for a certain part, they go to the bin where it should be. If it's not there, they

assume we don't have it. They can't take time to search our warehouse . . . or contact a stockman and have him hunt the part. The stockman could easily say, 'We're out.' The sale of a part has been lost. Even worse, that part may be the first on the customer's list. Upon finding out we don't have it . . . and he will have to go else-

where for it, he may decide to buy everything at the other source of supply.

"Take our back counter," Jones continued. "One of our mechanics comes up for parts to complete a job he's working on. If he has to wait unreasonably long at the counter, the time wasted costs him money . . . and when the mechanic is losing time, we are, too! We only make money from our mechanics when they are producing . . . yet overhead continues endlessly for us."

Every employee directly helps or hinders another.

It isn't human nature for Joe to help John unless there is some tangible reward for Joe. In order for Joe to help John, Joe receives the same reward that John receives. While John's base pay is more than Joe's . . . Joe's share of the bonus will be shared equally.

Those who have made a study of labor relations know that the working man is hourly-pay conscious. Men strike for a few cents an hour increase in pay. They usually ask more than they settle for agreeably. A few cents per hour seems more important to them than the sum total of their gain.

For example, strikers agree to go back to work for an hourly increase of three cents per hour. On a forty-hour week this means \$1.20 more. Presented this way, it appears insignificant. It is well to keep the above in mind.

(Continued on page 76)



No finer bearings made

DURA-BOND

All round camshaft bearings

No other bearing matches the superior performance and durability of the *all round* - the only *true round* before and AFTER installation. Fits better, lasts longer! Compare with any other bearing made.

NO SPLIT OR INTERLOCK TO DISTORT THE BEARING

REPLACE to keep 'em rolling!

If the worn cam bearing is overlooked (as it often is), oil loss can result in starvation of con rod and main bearings - a sure invitation to premature engine breakdown. *When it's time for an overhaul, it's time to replace!*



WRITE FOR CATALOG

listing our complete line of standard bore and common undersize cam bearings. All main and con rod bearings included.

DURA-BOND BEARING CO.
Box C, 715 Loma Verde Avenue
Palo Alto, California



CAMSHAFT BEARING SPECIALISTS CAMSHAFT, CON ROD, MAIN BEARINGS

HANDY COUPON FOR ORDERING DURA-BOND CATALOG

Please send us your complete catalog today.

Name _____ Firm Name _____
Address _____ City _____ State _____
Dura-Bond Bearing Company, Box C, 715 Loma Verde Ave., Palo Alto, Calif.

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DODGE

TRIPLE PROFIT OPPORTUNITY

*offers unequaled
ready-made market*

Over half the
sales are to
**REPEAT
BUYERS**



All available in one sales agreement
The only one of its kind in the industry

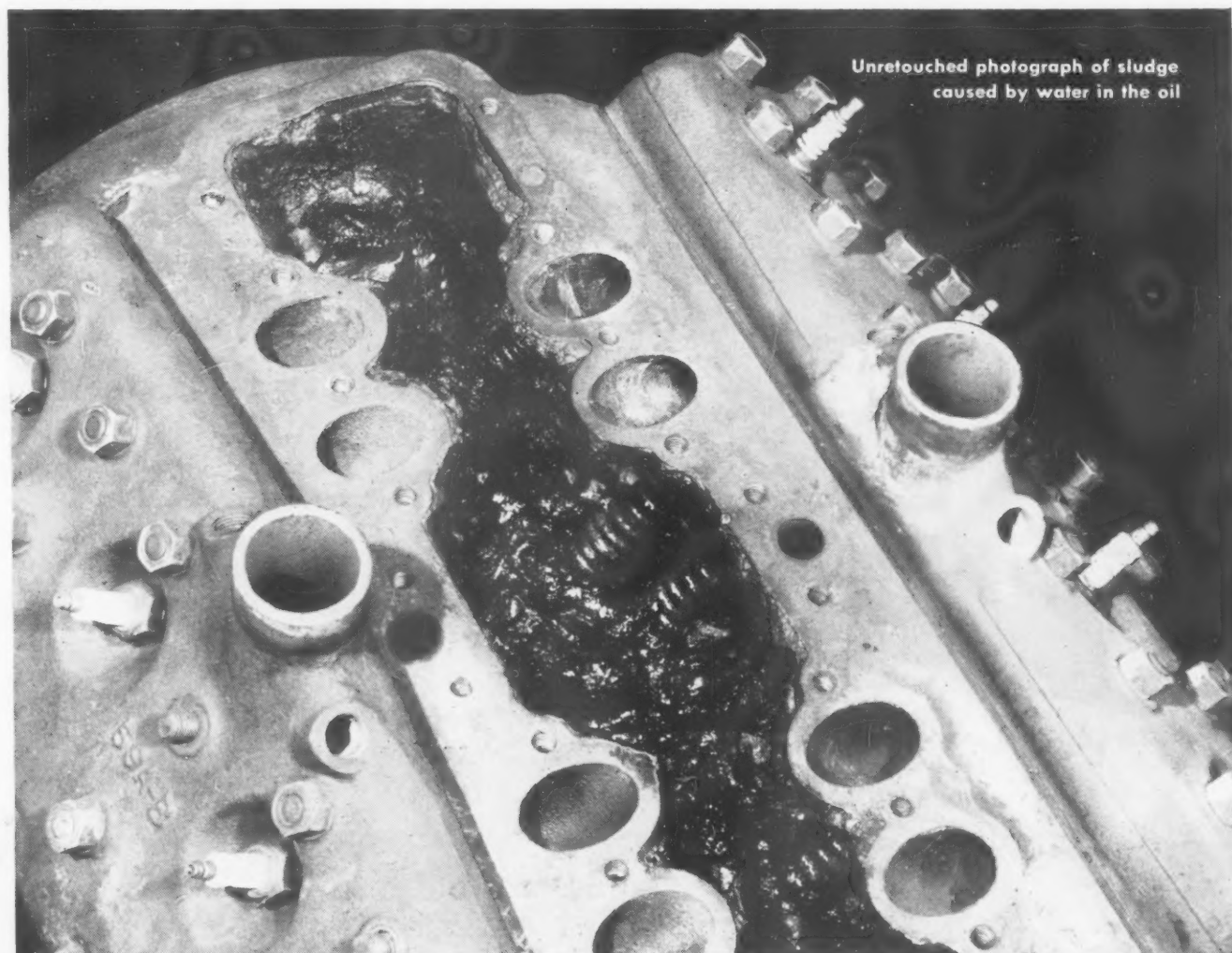
You are invited to write for the complete facts

DODGE • PLYMOUTH • DODGE "Job-Rated" TRUCKS

DODGE DIVISION, CHRYSLER CORPORATION • 7900 JOS. CAMPAU, DETROIT 31, MICHIGAN

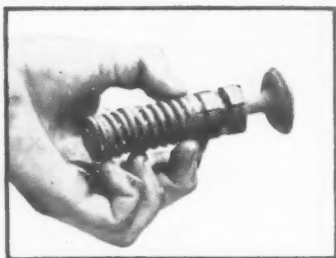
ACCORDING TO ACCEPTED AUTHORITIES

WATER IS THE MOST



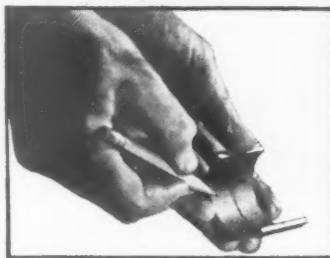
Unretouched photograph of sludge caused by water in the oil

WATER IN THE OIL STARTS ENGINE DAMAGE LIKE THIS!



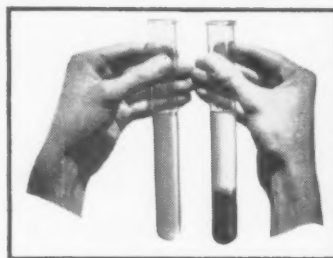
WATER CAUSES SLUDGE

the major cause of engine operating difficulties. Water in the presence of soot, lead compounds, road dirt and other solids in the oil creates a pasty, mayonnaise-like condition which is the starting point of sludge.



WATER MAKES ACIDS

the major cause of engine wear. Highly acidic blow-by fumes condense in the presence of water, form dangerous corrosive acids which are carried in the water contamination of the oil stream to all parts of the engine.



WATER DESTROYS DETERGENCY

the newest advancement in lubrication. According to well-known authorities, water contamination in the oil can destroy certain of the dispersant or detergent actions of modern heavy-duty oils.

OBJECTIONABLE OF ALL **OIL CONTAMINANTS!**

**Exclusive Walker Patented "Laminar" Construction not only Removes Road Dirt,
Metal and Other Abrasives — But Provides Extra Protection Against "Crankcase
Moisture" . . . The Cause of Wear-Producing Acids and Sludge**

● Of course it is important to remove solid abrasives which collect in the oil stream. Walker Oil Filters take care of that by famous "3-Way Filtration." But, according to unbiased authorities, the greatest enemy of motor oil and good lubrication is not abrasives. *It is "blow-by contamination" from the combustion chamber.*

In addition to creating soots, carbon and lead compounds, blow-by is the major source of "crankcase moisture"—or water in the oil. And *water in the oil is the most dangerous of all oil contaminants.*

Water in the oil is a "triple threat." It is the chief cause of sludge. It is the source of corrosive, wear-producing crankcase acids. It can destroy certain detergent or dispersant actions of the new heavy duty oils.

Because of the unusual moisture absorbing ability of the particular wood cellulose fibres used, Walker Oil Filters render a valuable *plus service* in the control of dangerous "crankcase moisture."

By selectively removing water from the oil, the Walker Oil Filter functions to prevent the formation

of sludge by helping keep the moisture content of the oil below the "sludge danger zone" . . . it minimizes corrosive acid wear by absorbing the acids contained in the water it removes from the oil that passes through it.

Regardless of what filter your customer may have on his car, give him the benefit of *full protection* from all dangerous oil contaminants—including the most damaging of all . . . *water* . . . by installing a Walker Oil Filter Cartridge.



WALKER MANUFACTURING CO. OF WISCONSIN • RACINE, WISCONSIN

WALKER

OIL FILTERS

WITH PATENTED *Laminar* CONSTRUCTION



Incentive Plan Continued from Page 72

At Frank Kent Motor Company, for each \$250 above the quota, each employee in the service department which includes those closely allied to it—tire changers, for instance—receives a one-cent hourly increase in pay. That is for the forty-hour pay. Frank Kent Motor Company operates on a fifty-hour week. Therefore, for the ex-

tra ten hours, the bonus is upped to a cent and a half per hour.

Let's say the base pay of a certain employee amounts to a dollar per hour. His first forty hours nets him forty dollars. For the other ten hours, at \$1.50 per hour, he receives fifteen dollars . . . or a base pay of \$55 for the fifty-hour week.

Arbitrarily, we are going to assume that the parts volume for last week totaled \$11,000. That is four \$250 steps above the quota of \$10,000.

Therefore, the employee whose base pay is \$55 per week is going to receive an increase of four cents per hour on his forty-week salary plus six cents for the extra ten hours.

In dollars and cents this increase does not total a staggering amount, as you can figure out. In the parts department there are eighteen participating employees. For the increase of a thousand dollars of business over the quota the bonus does not hurt Frank Kent Motor Company, either.

It is not uncommon for the quota to be exceeded by as many as ten \$250 steps—and it has been as high as 25 steps. This concludes that the quota established is not so high the men are discouraged to go over it.

This incentive pay plan's best feature for the company lies in the fact it stimulates all the employees to work in harmony and for each other's best interest. As a result, the company cannot help but benefit.

With this arrangement, one man cannot become neglectful without being "jacked up" by another employee . . . for one employee's negligence affects all the others.

The customers benefit from this,
(Continued on page 78)

BRUNNER AIR COMPRESSORS

"We have always felt that Brunner Air Compressors offered the biggest dollar value in performance, dependability and service life but...

don't take our word for it...

Most Brunner customers 'sold' themselves by making point by point comparisons. Obviously, we'd like to see you depending upon Brunner Compressed Air too and for that reason invite your request for a Brunner catalog as the first step in getting acquainted."



J. W. THOMAS
Sales Manager



A. D. SULLIVAN
Chief Engineer



SEND IT. I'd like to see and read the reasons why Brunner Air Compressors are selected by other men who recognize the importance of compressed air in the successful operation of their business.

Name _____

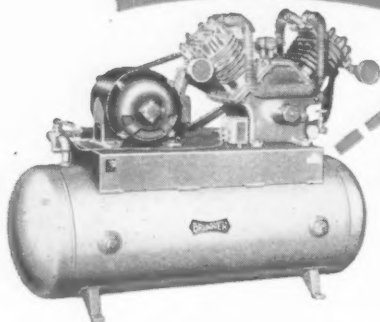
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City and State _____

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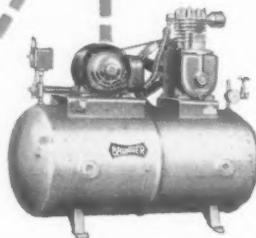
BRUNNER MANUFACTURING COMPANY, UTICA 1, NEW YORK, U.S.A.



- SINGLE STAGE 1/4 HP. TO 2 HP.
- TWO STAGE 1 1/2 HP. TO 15 HP.



AIR COMPRESSORS
...a size and type for every purpose



BRUNNER AIR COMPRESSORS have been in automotive service for 45 years.



"Tops in tools... and cheapest in the long run"

Says...

John L. Hathcock,
Manager, Lloyd's
Hydramatic Spe-
cialist, Oklahoma
City, Oklahoma.

"For 21 years I've
used Snap-ons, be-
cause they are tops
in tools, cheapest
in the long run. And
Snap-on service
can't be beat."
JOHN L. HATHCOCK



Snap-on Tools

Veteran service specialists by thousands agree heartily with John Hathcock's preference for Snap-on Tools and Snap-on's in-the-shop, right-to-the-bench service. Snap-on Tools boost a man's productiveness...increase his earnings...as much as 20 to 40 per cent in actual shop experiences! And only Snap-on offers nationwide direct-to-user service... "the time-saving way to buy time-saving tools." The 104-page catalog of the complete Snap-on line is free! If you haven't a copy write...



SNAP-ON TOOLS CORPORATION

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*Snap-on is the trademark of
Snap-on Tools Corporation.

back of Snap-on Tools Snap-on Service

Coast to coast...
through 800 helpful, friendly,
Snap-on men



Paul Echerd
Chicago Branch



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Boston Branch



N. F. Martin
Pittsburgh Branch



F. G. Woodling
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Bill Baehr
Dallas Branch



Wm. Crabtree
Los Angeles Branch



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St. Louis Branch



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E. A. Westin
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Art Gorgone
New York Branch



Warren W. Olson
Minneapolis Branch



L. N. Scott
Jacksonville Branch



Al Bacon
Seattle Branch



A. T. "Bud" Farnsworth
Denver Branch



Dale Criswell
San Francisco Branch



"Bud" Dingee
Oklahoma City Branch

Incentive Plan Continued from Page 76

too. They can rest assured that the parts they want will be on hand . . . and that they will be immediately accessible. This eliminates their being told they will have to go elsewhere or they will have to wait while someone searches the warehouse.

To instill interest, a sales thermometer with a red blinker light is installed, and each day's total is

marked on it. When the quota is reached, the blinker light is disconnected. The weeks here begin on Friday. . . . The idea is to get that blinker light cut off as early as possible. And the men watch it.

Aside from the cash involved, this evokes a competitive spirit among the employees . . . a challenge to test their ability to perform a good job . . . ceaselessly.

Public Gives Qualified O.K. to Big Business

The average American thinks that the benefits of "big business" in this country outweigh the drawbacks, but still have some serious reservations about it in general. A survey conducted by the Survey Research Center of the University of Michigan and financed by a \$50,000 grant from General Motors, showed that 76 per cent of the persons interviewed said, "the good things outweigh the bad things" in big business performance. Only 10 per cent had the opposite opinion. The favorable points about big business were listed as higher employment, mass production efficiency, development and improvement of products, and large contributions to taxes, education and community welfare. On the negative side, interviewees felt that big business has too much power to reduce competition, squeeze out smaller operators, and

... TUTHILL SPRINGS ...

FIRST LAST ALWAYS

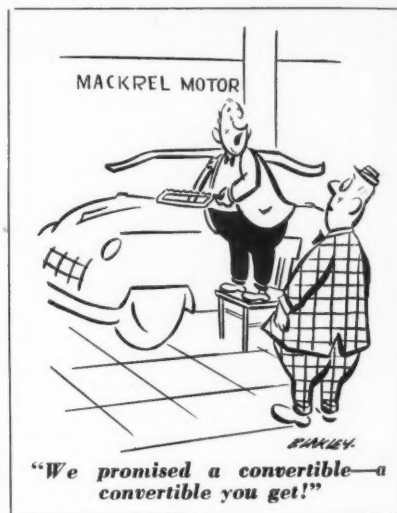
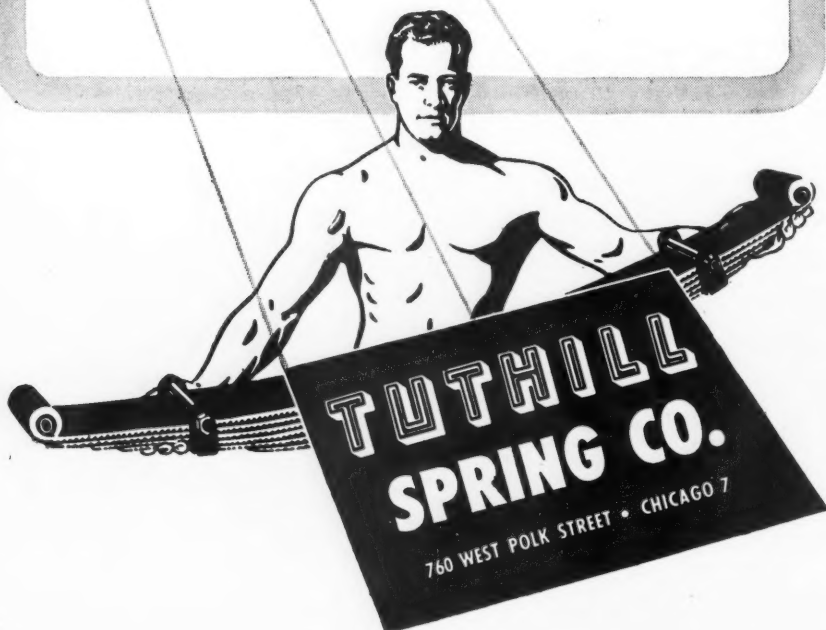
For 70 years, Tuthill has been first in keeping pace with newest developments in the manufacture of replacement springs. Now . . . treated with **MOLYBDENUM DISULPHIDE (MoS₂)** . . . Tuthill is first to offer springs that won't squeak or gall!

Since 1880, only the finest quality alloy steel obtainable has been used in manufacturing Tuthill Springs . . . heat treated for greater strength, to take more abuse and last years longer!

Tuthill Springs are profitable to handle . . . always in demand because they're dependable and priced right.

To get premium quality without paying premium prices—whether it's a spring for heavy-duty trucks or easy-riding cars—you can rely on Tuthill first, last, and always!

Ask your Jobber for a FREE copy of our Car Application Wall Chart.



fix prices, and that it has failed to consider the rights of workers adequately. An interesting point is that many who said big business makes excess profits indicated they buy from large chain grocery stores or super markets because of lower prices. At the same time, 71 per cent said that big business could reduce selling prices and still make an adequate profit. The survey revealed that the public believes more and not less control of business should be exercised by national and state governments, and that both business and labor unions have too much power over the nation's economy.



Use Certified Air Service and build **SALES**

Preventive Service—the basis of Schrader's Certified Air Service Plan... makes "free air" your ticket to profit. Certified Air Service is a new idea in sales-through-service that enables you to use your airlines as a starting point for making new steady customers and getting more business from your regular trade.

Thousands of dealers are beginning this timely new service. If you haven't already started, all you need is the new, specially low-priced Schrader #530-U "Certified Air Service" Merchandising Unit. It contains the products, signs and instructions, including the finest Schrader Gauge (#8106B Trutest Special), 50 #880MB Valve Caps, 50 #4000 Valve Cores, 5 #5050 Gauges and the new Manual that shows how to start to profit the easy way. Get your #530-U Merchandising Unit from your supplier today!

A. SCHRADER'S SON, BROOKLYN 17, N. Y.
Division of Scovill Manufacturing Company, Incorporated

Schrader

REG. U. S. PAT. OFF.

SUMMER DRIVING MEANS INCREASED TUBE REPAIRS
Be sure you're all set to cash-in
with these Genuine Schrader Products



Schrader
#530-U
Merchandising
Unit



A \$15.23
value for **\$13.13**
dealer U. S. A.

FIRST NAME IN TIRE VALVES

FOR ORIGINAL EQUIPMENT AND REPLACEMENT

Speed Service Continued from Page 56

(usually a specialist) is assigned to the car. When he goes for the parts, he gets them without waiting because the parts department already knows his needs, has assembled them, and has them ready for him to pick up.

From here power tools take over to speed the service, and save time on the job. Special tools and equip-

ment aid materially in expediting and improving the work, and preventing mechanic fatigue. Among the modern pieces of equipment installed in the shop are motor analyzers, a visual wheel balancer and aligner, a two-post lift in each stall, portable lifts, a traveling freight crane for parts, and air and electric impact tools.

The shop also has purchased five electric power tools, one for every three mechanics to run and remove nuts, drive and remove screws, wire brush, drill metal, remove broken cap screws and studs; tap, ream, and hole saw. However, they find their greatest application in this shop in nut-running and removal. According to the service manager, they are used every day on every job. When a wheel needs changing, the power tool spins off the five or six nuts in 32 seconds. It takes as much as five to eight minutes to remove these same nuts with an ordinary hand lug wrench, and if the nuts are frozen, it takes much longer. With the tool frozen nuts are removed as easily and quickly as ordinary nuts.

In pulling cylinder head bolts, it is estimated that the power tool saves 50 per cent of the time ordinarily required with a hand wrench. In fact, DiGardi says that 40-50 per cent would be a conservative estimate of the time saved on most applications for the tool.

In this up-to-date service shop, mechanization extends even to the body and paint shops. A dust-free spray booth, with built-in ventilation, keeps the air clean and clear at all times, and a special machine cuts and polishes glass for windshield and window repairs. Other features which save time are such things as building the wash booth with an exit door to the outside parking yard. This eliminates shuttling around cars lined up for washing in the shop. An exhaust system takes the noxious motor ex-

(Continued on page 82)

OUTMODED COILS
Just won't do for
MODERN CARS

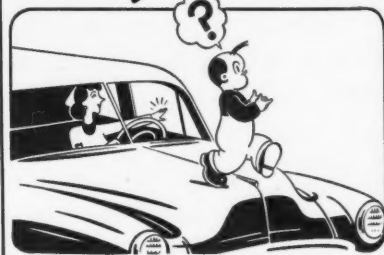
The higher voltages required by today's high compression engines demand modern Coils. Compare and you'll choose ECHLIN as today's outstanding Ignition Coil!

ECHLIN Ignition

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& OTHER AUTOMOTIVE
ELECTRICAL PARTS

ECHLIN MANUFACTURING COMPANY, Dept. MA, 220 EAST ST., NEW HAVEN 5, CONN.

Guy Wise



Sometimes it's tough to figure out and hard to understand — Just what a woman driver means by sticking out her hand — Does she mean to make a turn or doesn't it mean a thing? Or is she just admiring her pretty engagement ring?

AUTO-LITE

is a complete wire and cable line

Auto-Lite wire and cable is beautifully packaged... sells on sight... meets every car need. It's original equipment, too.



It will pay you to switch to the Auto-Lite Wire and Cable Line . . . the complete line—Steelductor Spark Plug Wire, Flextrand Primary Wire and Auto-Lite Power Line Battery Cable with the new Power Line Terminal that holds tight. Sign up today with Auto-Lite for the best dollar-making merchandising combination in the industry. Write directly to

THE ELECTRIC AUTO-LITE COMPANY
Merchandising Division
Toledo 1, Ohio Toronto, Ontario



The Auto-Lite Wire and Cable Catalog, giving complete specifications for every automotive vehicle, is available on request.

PLUS

AUTO-LITE "Steelductor" SPARK PLUG WIRE

This outstanding Silver Sheathed Auto-Lite Steelductor high tension ignition cable employs a seven-strand conductor of stainless steel instead of the conventional nineteen strands of copper wire. Gives remarkable improvements in performance when employed in shielded circuits.



PLUS

AUTO-LITE "Flextrand" PRIMARY WIRE

Highly resistant to attacks of heat and oil, Auto-Lite Silver Sheathed Flextrand primary wire permits easier stripping and soldering . . . gives long life . . . and is easy to install.



PLUS

AUTO-LITE "Power Line" BATTERY CABLE

Auto-Lite Battery Cable, complete with the new Power Line Terminal that resists corrosion . . . assures excellent contact . . . complete customer satisfaction.



Speed Service Continued from Page 80

haust from each car through tubes which lead outdoors. The repair shop air is thus kept clean and fresh at all times. This also contributes toward more efficient and speedier work, and healthier working conditions.

Each of the 15 skilled mechanics has his own bay, completely equipped with hand tools, and

every stall is serviced with a water line, an air line, and with 220 and 110 volt receptacles for electric welding and for the electric power tools. No lost time or waste motion is involved in making power line attachments. Everything is at hand to save time in walking around the shop and to enable the mechanic to keep right on the job.

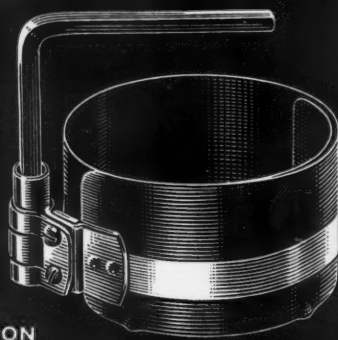
**Don't
overlook
this!**



**Herbrand's
midget
PISTON RING
COMPRESSOR**

NO. RC-25

A TOOL-OF-THE-MONTH SELECTION



The increasing popularity of small foreign cars, power lawn mowers, garden tractors, scooter bikes, etc. necessitates the use of a midget size compressor for piston ring jobs. The No. RC-25 has a range of 1½" to 3".

Highest grade clock spring steel is used in the two inch high bluesteel compression band and single tension band. Adjustable friction brake is actuated by ¼" square handle. Compression band has beaded edge—cannot enter cylinder with piston. To service all small bore motors from 1½" to 3", you'll need the RC-25 Herbrand Piston Ring Compressor.

Mechanic's Net \$1.15

Herbrand Tools, Fremont 7, Ohio



The No. RC-25 is Herbrand's current TOOL-OF-THE-MONTH selection. See it at your Herbrand distributor or write us.



Herbrand
VAN-CHROME TOOLS
...the finest money can buy!

Nor is any time wasted in taking records and orders from one spot to another after the work has started. The carrier tube dispatch system is a two-way affair, operating from the parts room back to the cashier. Each department also has an intercom, to save time in contacting other departments of the shop.

The shop offers a complete repair service. But it can only do so because it's set up for fast work with the most modern equipment available. The service shop manager has found that this pays off—in extra profits, in quicker repairs, and in contented customers.

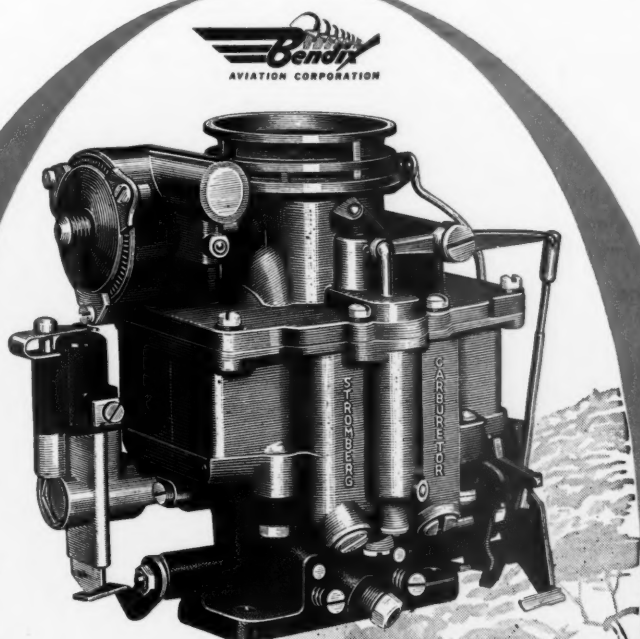
Need More Rubber Output To Avert World Shortage

Although the supply of rubber by the end of this year will be more than adequate for world use, the long range outlook is for a shortage within ten years unless production capacity is greatly increased. P. W. Litchfield, chairman of Goodyear, says that maximum capacity of both natural and synthetic rubber at present would amount to no more than 3.5 million long tons annually, and that by 1960 world demand could reach 4 million long tons a year. He said that rubber consumption in the United States currently is 18 pounds per capita, compared with one pound 50 years ago, but that in other countries current rubber use is one pound per person per year. He said American demand for rubber will continue to increase and that as higher standards of living develop in other countries, foreign rubber consumption will rise.



STROMBERG*

You Sell Premium Features at No Premium in Price!



SIMPLICITY—Fewer working parts result in long wear and low maintenance.

ANTI-PERCOLATOR—A Stromberg feature that prevents hard starting and waste of gas when the engine is hot.

ECON-O-METERING—Separate metering systems for cruising and high speed operation assure utmost economy always.

ACCEL-ABILITY—Positive and smooth acceleration satisfying the most critical.

BALANCED RATIO—For additional economy, a sealed unit automatically controls the amount of gasoline used in proportion to the amount of air.

These Bendix signs stand for good business and for good business relations between factory, dealer and customer.



Replacement Carburetors
—Repair Kits



Original Equipment on
most cars



Hydrovac® Power Brake
—Trailer Power Braking
Systems



Cold Immersion Parts
Cleaner saves time and
money

*REG. U. S. PAT. OFF.

The **Bendix** SOUTH BEND
PRODUCTS DIVISION INDIANA
Standard Equipment Sales: Elmira, N. Y.

uality

CARBURETOR

Canadian Sales: Bendix-Eclipse of Canada, Ltd., Windsor, Ontario, Canada • Export Sales: Bendix International Division, 72 Fifth Avenue, New York 11, N. Y.

Calendar of Coming Events

Aug. 13-15—Society of Automotive Engineers, West Coast Meeting Olympic Hotel, Seattle, Washington.

Aug. 21-24—5th Annual Session, National Congress of Petroleum Retailers, Sherman Hotel, Chicago, Ill.

Sept. 3-7—120th National Diamond Jubilee meeting, American Chemical Society, Hotel Statler, New York.

Sept. 10-13—Society of Automotive Engineers, tractor and production forum, Schroeder Hotel, Milwaukee, Wis.

Sept. 12—American Petroleum Institute, (Lubrication committee business meeting), The Traymore, Atlantic City, N. J.

Sept. 12-14—National Petroleum Institute, Hotel Traymore, Atlantic City, N. J.

Sept. 16-18—28th Annual Convention, New York State Auto Dealers Assn., Sagamore Hotel, Bolton Landing, Lake George, New York.

Sept. 16-18—Annual Convention of Kentucky Automobile Dealers Assn., Kentucky Lake, Gilbertsville, Ky.

Sept. 24-25—New Mexico Automobile Dealers Assn. annual convention, Murray Hotel, Silver City, N. M.

Sept. 24-26—National Truck Body Manufacturers and Distributors Assn. annual convention, Haddon Hall, Atlantic City, New Jersey.

Sept. 27-28—Convention of Kansas Motor Car Dealers Assn., annual convention, Town House, Kansas City, Kansas.

Sept. 27-28—33rd Annual Convention, New Jersey Automotive Trade Assn., Hotel Traymore, Atlantic City, N. J.

Sept. 30-Oct. 1—Automobile Dealers Assn. of Alabama, Inc., annual convention, Buena Vista Hotel, Biloxi, Miss.

Oct. 1-2—32nd Annual Convention, Minnesota Automobile Dealers Assn., Radisson Hotel, Minneapolis, Minn.

Oct. 4—12th Anniversary Dinner of Automobile Old Timers, Hotel Book-Cadillac, Detroit, Mich.

Oct. 4-6—Pennsylvania Automotive Assn. annual convention, William Penn Hotel, Pittsburgh, Pa.

Oct. 5-7—Idaho Auto Dealers Assn., convention, Sun Valley, Idaho.

Oct. 7-9—The South Dakota Automobile Dealers Assn., 1951 annual convention, Mitchell, South Dakota.

Oct. 21-23—Georgia Automobile Dealers' Assn., General Oglethorpe Hotel, Savannah, Ga.

Oct. 21-23—Automotive Trade Assn. of Virginia convention, John Marshall Hotel, Richmond, Va.

Oct. 24-31—Annual meeting, National Lubricating Grease Institute, Edgewater Beach Hotel, Chicago, Ill.

Oct. 29-31—Annual Convention, Ohio Automobile Dealers Assn., Dayton Biltmore Hotel, Dayton, Ohio.

Oct. 29-30—Society of Automotive Engineers, Diesel Engine Meeting, Drake Hotel, Chicago, Ill.

Oct. 29-31—Society of Automotive Engineers transportation meeting, Knickerbocker Hotel, Chicago, Ill.

Oct. 31-Nov. 1—Society of Automotive Engineers, fuels and lubricants meeting, Drake Hotel, Chicago, Ill.

Nov. 3-6—Texas Automotive Dealers Assn., Shamrock Hotel, Houston, Tex.

Nov. 4-5—Texas Used Car Dealers Assn., 1951 Convention, Waco, Tex.

Nov. 5-7—Annual Convention, Motor Equipment Wholesalers Assn., Stevens Hotel, Chicago, Ill.

Nov. 5-8—Annual Meeting, American Petroleum Institute, Chicago, Ill.

Nov. 14-15—Annual Meeting of Oklahoma Automobile Dealers Assn., Skirvin Hotel, Oklahoma City, Okla.

Nov. 25-30—Annual Meeting, The American Society of Mechanical Engineers, Chalfonte-Haddon Hall, Atlantic City, N. J.

Nov. 27-29—Annual Convention of National Used Car Dealers Assn., Hotel Tampa Terrace, Tampa, Fla.

Dec. 7-8—Annual Convention, Montana Automobile Dealers' Assn., Placer Hotel, Helena, Montana.

Jan. 14-18, 1952—Annual Meeting, Society of Automotive Engineers, Inc., Hotel Book-Cadillac, Detroit, Mich.

Jan. 27-30—NADA Convention, Waldorf-Astoria Hotel, New York City, N. Y.

Feb. 28-Mar. 2—1952 Pacific Automotive Show, Pan Pacific Auditorium, Los Angeles, Calif.



Put it there, men!—in the cooling system, as made clear and easy by the installation chart—and do this on car after car.

You'll find how thermostat profits add up, and satisfied customers become boosters for you.

There's a Dole DV to control motor temperature on all the modern pressure-cap systems—and also the 3-to-10-year old cars which promise a big active source of service jobs this year. DV's offer efficiency unaffected by pressures in open or sealed cooling systems—hence smooth performance, quick warm-up with savings of gasoline, oil and motor wear.



CONTROL
WITH DOLE

Make Thermostat Replacement
Part of Every Cooling
Systems Check-Up

**RIGHT
EVERYWHERE**

Original Equipment on
Many Cars & Trucks

**DOLE
D-V**



Model DV1

THERMOSTATS

THE DOLE VALVE COMPANY • 1901-1941 Carroll Avenue,
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CAPT. EASY Says:

IT'S **EASY** TO SERVICE CAR,
TRUCK, BUS OR TRACTOR
WITH WEATHERHEAD'S
G-400 ASSORTMENT



Every make of car, truck, bus and tractor can be serviced from this popular G-400 assortment. Whether you're a fleet operator—or car, truck or implement dealer you'll find this Weatherhead Salesmaker makes service easier . . . makes fittings, brake hose and fuel lines EASY to stock, EASY to identify, EASY to install, EASY to sell! *Get It From Your Jobber!*

WRITE for free catalogs—ask for J-103-L on Weatherhead Original Equipment Parts, J-1503 on Heavy-Duty Hose and REUSABLE hose ends. Address: Dept. D, The Weatherhead Company, 300 East 131st Street, Cleveland 8, Ohio.

The **EASY** line to handle is...



Fluid Couplings Continued from Page 39

which are available. The most tedious job on the whole unit is replacing the front bearing. This bearing is pressed on the runner hub shaft and into the flange which is covered by a plug to prevent the oil from escaping. To remove it on all models before 1946, a drift pin is inserted on the end opposite the plug and the plug is driven out.

Then a special puller with jaws that fit inside the ball bearing is installed and the slide hammer pulls the bearing off the shaft and out of the pocket.

On later models the plug is welded and must be cut with a special hole cutter as shown in the illustration at the upper left. When replacing a plug that has been cut

out, it must be welded and soldered to prevent oil leakage.

After all the parts have been removed, cleaned and examined and all the necessary parts are replaced, the unit is tested for leaks by attaching an air hose and applying 15 to 20 lbs. air pressure while the unit is submerged under water.

Automotive Industry Shows Profit Rise in 1st Quarter

Companies within the motor vehicles and parts industry group reported a 4 per cent increase in profits during the first quarter of 1951, as measured against returns in the fourth quarter of 1950. Figures in both instances refer to profits remaining after federal taxes.

By showing a percentage increase, the motor vehicles and parts companies became one of only five major industry groupings to record greater profits in the first three months of this year. Statistics released jointly by Federal Trade Commission and Securities and Exchange Commission indicated most branches of industry were making fewer profits. The average decline in returns reported by 22 major groupings was 8 per cent.

Motor vehicles and parts firms registered an actual monetary drop, before taxes, from \$889 million in profits at the end of the fourth quarter, 1950, to \$716 million between January 1 and March 31. After taxes, however, remaining profits were higher by \$10 million at the end of the first quarter of this year.

COILS • CONDENSERS • DISTRIBUTOR HEADS
VOLTAGE REGULATORS • also FUEL PUMPS

The Spark of Life

GENUINE
P&D
IGNITION PARTS
REG. U.S. PAT. OFF.

Put in
SMILEAGE with P&D

Care will save the cars now on the road. In the present period of emergency, it is more important than ever to buy high quality parts. No better S. L. & I. parts can be bought than P. & D., and there is no better fuel pump than P. & D.

P. & D. MANUFACTURING COMPANY, INC.

19-02 STEINWAY STREET, LONG ISLAND CITY 5, N. Y.



Where will you get your Buick parts?

IN the days ahead, when you need Buick parts—if *anyone* has them, your Buick dealer will.

You can continue to depend upon him as the only source for a complete line of Buick parts.

You'll also find regular trade discounts—and friendly service information when you want it.

Doesn't it stand to reason that *your Buick dealer is the man to do business with*—today, tomorrow and always?

ENGINEER APPROVED ACCESSORIES



FACTORY ENGINEERED PARTS

Better work with Buick parts

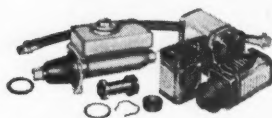
see your Buick dealer

Outsells all

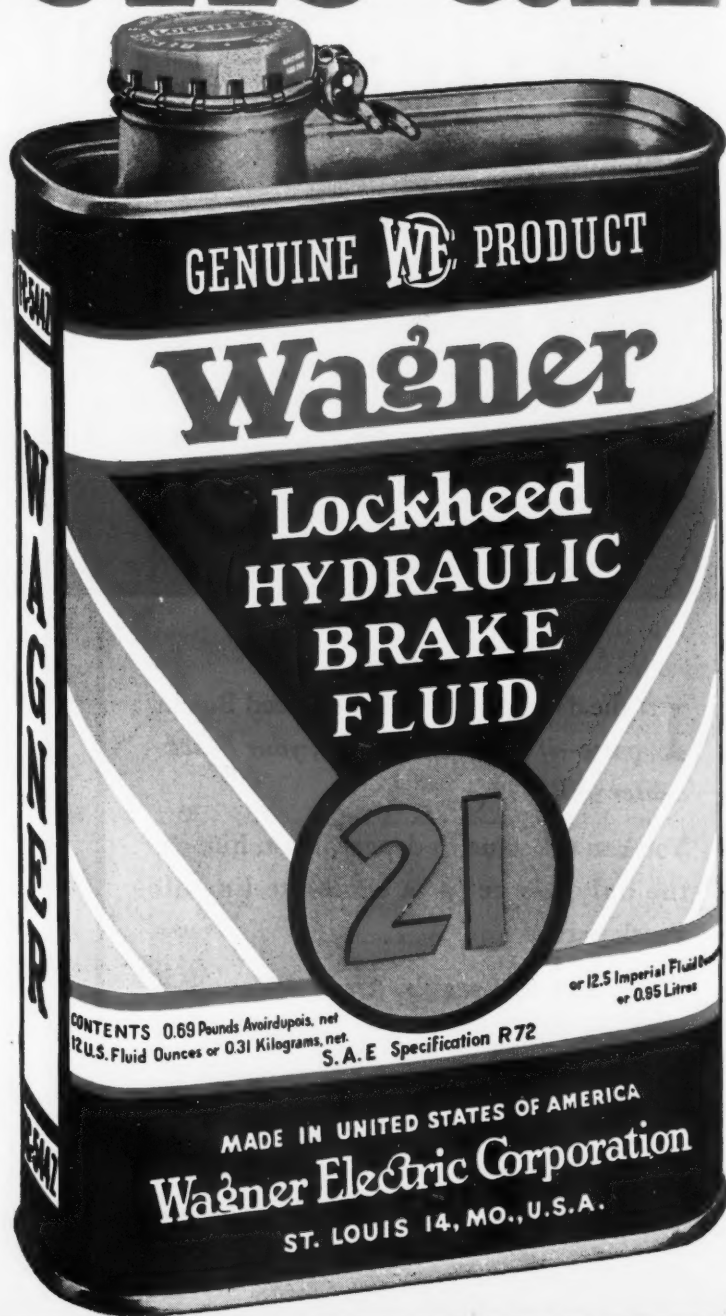
all from **ONE** source
....your Wagner jobber



WAGNER CoMaX BRAKE LINING — offers complete coverage for all your needs ... in sets, rolls, blocks, slabs and cut segments. A non-compressible, long wearing lining of uniform texture.



WAGNER LOCKHEED HYDRAULIC BRAKE PARTS — a complete line, covering all makes of cars and trucks including seldom used, slow-moving parts not easily obtainable elsewhere.



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LOCKHEED HYDRAULIC BRAKE PARTS and FLUID • NoRoL • CoMaX BRAKE LINING • AIR BRAKES

others....

Only Wagner Lockheed brake fluid has ALL these features and advantages!

1. A proven product... Used by vehicle manufacturers.
2. ONE mixture for ALL cars and trucks... reduces inventory.
3. ONE mixture for ALL seasons... reduces inventory.
4. Assures year round operating performance.
5. Functions in sub-zero temperatures.
6. Amply lubricates the system over operating temperature range.
7. Maintains chemical characteristics after long use.
8. Maintains high operating temperature characteristics.
9. Mixes with all other approved fluids.
10. Does not evaporate rapidly.
11. Is non-injurious to skin.
12. Does not corrode or rust the system.
13. Does not cause cups or hose to swell.
14. Forms no gummy residue.
15. Nationally advertised in POST and COLLIER'S.
16. Surpasses S.A.E. Standards.
17. Has consumer acceptance first in brake fluid sales.
18. Available in 12 oz., quart, gallon, 5, 30, and 54 gallon containers.
19. Warehoused internationally through 25 Wagner Branches.
20. Available everywhere through leading automotive jobbers.
21. A product of Wagner Electric Corporation.

You can depend on WAGNER QUALITY because Wagner products are used as original equipment by automobile, truck, bus and trailer manufacturers. See your nearest jobber or write us for details.

Wagner Electric Corporation

6498 Plymouth Ave., St. Louis 14, Mo.

(Branches in Principal Cities and in Canada)

*...the best known
name in brake service*

TACHOGRAPH • ELECTRIC MOTORS • TRANSFORMERS

INDUSTRIAL CRANE BRIDGE BRAKES

Please send me the latest Bulletins on
Hydraulic Brake Servicing—HU-17H, HU-197.

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FIRM NAME _____

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CITY _____

ZONE _____ STATE _____



The "Offy" Continued from Page 41

the return oil and send it back to the tank. The purpose of the large oil supply kept separate from the engine is to provide cooling and to insure ample lubrication even if a leak develops. The heavy body oil is specified because of the wide clearances in this engine and because of the high operating temperatures.

The crankshaft is machined from a single piece of steel which has been heat treated to extreme strength. Connecting rod bearings are steel backed inserts with copper lead lining and the main bearings are large bronze castings with babbitt lining. The large main bearing collets bolt right to the webs of the crankcase. The

crankshaft and main bearings can be removed from the crankcase as an assembly. These precision fit bearings, used on a precision ground crankshaft, have excellent wear characteristics, as can be seen in Figure 2. The connecting rod bearing illustrated has been run twenty races or about 300 miles, and the only sign of wear is the loss of the original gloss from the surface. The bearings are accessible through large hand holes in the side of the crankcase, which are covered with plates.

The dome-type pistons are aluminum alloy. Three rings are used, and the floating wrist pins are retained by aluminum retaining buttons.

In order to prevent valve flutter at high speeds and to insure against breakage, double concentric valve springs are used. Valves are actuated by a dual overhead camshaft which works off a "Y" type gear train from the front of the engine. To remove the valves, the block must be separated from the crankcase and lifted off. The advantages of the dual overhead camshaft are that (1) central location of the spark plug is possible. On this type engine, with a single overhead camshaft, the rocker arms would be directly over the cylinder so that the plug would have to be off to one side. By having two camshafts, they can be offset to allow room for the plug in the center. (2) The camshaft

(Continued on page 92)

PERFECT TUNE-UP JOBS

...in half
the time

TEST

COIL
CONDENSER
WIRING
FUEL PUMP
SPARK PLUGS
CARBURETOR
COMPRESSION

ADJUST

SPARK PLUGS
DISTRIBUTOR
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IDLE
IGNITION
TIMING

1 CONVENTIONAL TUNE-UP

TEST **ADJUST**

2 DYNO-TUNE JOBS

ADJUST **TEST**

...Because you save
80% of the test time
using the

Clayton
DYNAMOMETER

AS EVERY SERVICE MANAGER KNOWS... testing and checking take more than half the time required for a conventional tune-up. With the Clayton Dynamometer, all functions of ignition, compression and carburetion are tested simultaneously, cutting diagnosis time by 80%. Send the coupon and learn how every tune-up can be completed in half the time, with customer satisfaction guaranteed.

FREE!

"A PROVEN PLAN OF SERVICE DEPARTMENT OPERATION" for the return of this coupon.



CLAYTON MANUFACTURING CO.
BOX 550, EL MONTE, CALIF.

MA-8

Without obligation on our part, send us the story of doubled tune-up profits.

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FIRM _____
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WOULD YOU PAY \$3.50 TO MAKE \$75. PROFIT A WEEK?



OVER \$150 IN BRAKE WORK THE FIRST WEEK That's the results Wnek Auto Service, a 5 man shop in Amherst, Ohio had with the American Brakeblok Minute Brake Check Program

THIS SHOP DID! SO CAN YOU!

Want to increase brake profits in your shop? Want to save lives? Help reduce accidents?

You can! Just like the Wnek brothers shown above.

FIRST. They asked for a free Pedal Blok. It's a slotted wooden blok that fits under the brake pedal, finds faulty brakes, in a minute, *before* pulling a wheel.

We'll send you one, no charge, with our compliments.

SECOND. The Wneks ordered one of our Minute Brake Check Kits. It contains a big, outdoor cloth banner, pennants, a 7 pc. display, post cards, folders, complete directions. And costs only \$3.50.

THEN THEY PUT IT TO WORK. They offered a Minute Brake Check to every motorist that drove in. Sold over \$150.00 worth the first week, and it's still going strong. To quote Ted Wnek: "We were amazed. We had no idea we'd get so much work or that customers would co-operate so willingly. That Pedal Blok sure is a money maker."



"THIS AMERICAN BRAKEBLOK PEDAL BLOK DOES THE TRICK," says Ted Wnek, left, shown with his brother Ed. "It intrigues motorists. And we were amazed at how willingly people co-operated. They certainly are safety conscious about their brakes."

Write now, today, for your free Pedal Blok. We'll send it without obligation, plus full details about our Minute Brake Check Kit.

MAIL THIS COUPON NOW!

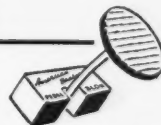
American Brakeblok
Dept. D
4612 Merritt Ave.
Detroit 9, Mich.

Rush me your Pedal Blok, without obligation.

NAME _____

ADDRESS _____

CITY _____ STATE _____



AMERICAN

Brake Shoe

COMPANY

AMERICAN BRAKEBLOK DIVISION
DETROIT 9, MICHIGAN

The "Offy" Continued from Page 90

can act directly on the valve stem, rather than through push rods or rocker arms. This positive action is essential for high speed racing operation. (3) There are less moving parts to wear.

To remove the valves, the block must be separated from the crankcase and lifted off. This leaves the crankcase, crankshaft, rods and

pistons as an assembly. Then the valve springs are removed and the guides slid out from above. This provides the extra clearance needed to clear the cylinder wall for removal.

In reseating the valve seats a special dummy guide is placed in the valve guide hole and a special grinding attachment inserted from

within the cylinder. Then the seating tool can be rotated from outside. The valves seat directly on the block metal—no seat inserts are used.

Adjusting the valves involves grinding the stems or adding shims inside the valve cup, which fits over the springs and stem. The cam lobe rides on this cup, and by adding or removing shims between the stem and cup, and by grinding the stem, the valve clearance can be varied. Valve spring tensions are (open) 165 pounds on the outer and 90 pounds on the inner.

The "Offy" has removable covers on the water jackets. When these covers, which run the full length of the engine, are removed, the entire water jacket is accessible inside. This simplifies cleaning and repairing. Welding, which would normally be impossible, is no problem at all because of this open water jacket. No fan is used on this cooling system, since a fan is unnecessary above 35 mph. The single centrifugal type water pump circulates ten gallons per minute, and the normal operating temperature of the engine is 160 degrees F.

Precision construction, top quality materials and all of the latest engineering developments are combined in this engine to provide maximum power while consuming minimum space with a minimum of weight. (The complete engine weighs only 265 pounds.) While the "Offy" has a displacement of only 103 cubic inches, a 3-inch bore and 3 $\frac{5}{8}$ -inch stroke, it develops 133 hp at 6700 rpm.

The Most Astounding Product Acceptance IN AUTOMOTIVE HISTORY!

BUNDYFLEX

**SUPER-SOFT
COPPER-FUSED** **METAL TUBING**

FOR BRAKE LINES, FUEL LINES, OIL LINES, OIL
FILTER LINES, WINDSHIELD WIPER LINES, ETC.



**STANDARD EQUIPMENT
MORE THAN 20 YEARS**
ON PASSENGER CARS, TRUCKS
BUSES and FARM TRACTORS

**Always Better than Copper Tubing
for Repairs and Replacements**



**Easy TO BEND, FLARE,
SOLDER, BRAZE and WELD**

5 PROTECTIVE LAYERS

Continuous Double-Wall Steel Tube,
Fused Together with Copper-Steel Alloy
Binder. Copper-Steel Alloy Inside and
Outside Surfaces. No Welded Seams.

1. Copper-Steel Alloy Coat-
ing (protects outer surface)

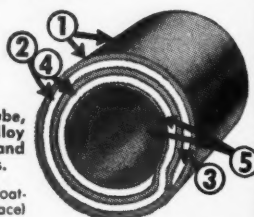
2. Outer Super-Soft Steel
Wall

3. Fused Copper-Steel Alloy
Center (unites 2 steel walls)

4. Inner Super-Soft Steel
Wall

5. Copper-Steel Alloy Lin-
ing (protects inner surface)

25-Ft. Coils: 1/8" 3/16" 1/4" 5/16" 3/8"
12-Ft. Straight Lengths: 7/16" 1/2" 5/8"



FORD
MERCURY
LINCOLN
CHRYSLER
DODGE
DE SOTO
PLYMOUTH
CHEVROLET
PONTIAC
OLDSMOBILE
BUICK
CADILLAC
PACKARD
KAISER
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HUDSON
NASH
STUDEBAKER
WILLYS
CROSLEY

DIAMOND-T
FEDERAL
G.M.C.
INTERNATIONAL
JEEP
MACK
REO

Standard Equipment
on Refrigeration, Air
Conditioning, Oil
and Gas Heating
and Industrial Ap-
paratus, Airplanes,
Diesel Locomotives,
etc.

EVERHOT PRODUCTS CO.

2001-9 W. CARROLL AVE.
CHICAGO 12, ILLINOIS

West Coast Warehouse 1305 South Hope St. Los Angeles 15, Calif.



Make **LIFE**
this
ad work for
you

Here's the prize-winner
for more

Ford

Service Business



Your prize-winner for extra profit is the familiar blue and white Genuine Ford Parts sign. When you display this sign you let Ford owners know you're headquarters for the service they want with the parts that are right for Fords. And you take advantage of hard-hitting national advertising that sends Ford owners your way—

Here's Why:

Ford owners in your area see and read ads like this, month after month, in LIFE and other publications.

These appealing, colorful advertisements continually remind Ford owners that Genuine Ford Parts are the right parts to save them time, money, and to assure satisfaction.

And they're reminded that the Genuine Ford Parts sign marks the headquarters for service that features the right parts for Fords.

★ Order Genuine Ford Parts today from your Ford Dealer—and ask him how you can get the Genuine Ford Parts sign that attracts extra Ford service, extra profit for you,



ME win a Beauty Prize?



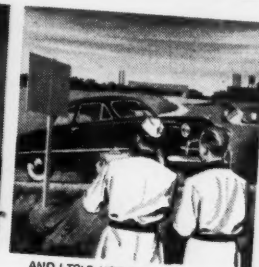
I DON'T MIND TELLING YOU, I WAS ONE SURPRISED MECHANIC WHEN THAT GIRL HANDED ME THE LOVING CUP FOR 1ST PRIZE IN A BEAUTY CONTEST!



BUT SHE SET ME STRAIGHT. SHE TOLD ME I WON IT FOR HER...BY REPAIRING HER FORD SO FAST THAT SHE WAS ABLE TO GET TO THE CONTEST BEFORE THE ENTRIES CLOSED



I EXPLAINED THAT THE PRIZE SHOULD GO TO THE GENUINE FORD PARTS I USED. IT'S NO TRICK TO DO A GOOD, FAST JOB WITH PARTS THAT ARE MADE RIGHT TO FIT RIGHT.



AND I TOLD HER THAT THE JOB I DID WOULD STAY RIGHT! FOR GENUINE FORD PARTS ARE TESTED AND PROVED FOR LONG LIFE BY THE MEN WHO BUILT HER FORD!



I EXPLAINED SHE'D SAVE TIME, MONEY AND HER FORD IF SHE ALWAYS SPECIFIED GENUINE FORD PARTS!

AVAILABLE WHEREVER YOU SEE THIS SIGN AT ALL FORD DEALERS AND SELECTED INDEPENDENT GARAGES

KEEP YOUR
FORD
ALL FORD



FORD Division of FORD MOTOR COMPANY

ride in this one, Larry. It can't be anything too serious."

"It better not be anything too serious," Larry commented with a dry glance at the clock. "After all, you promised it to Mac by noon, an' it's nine-thirty now."

Pop glanced at the clock in feigned surprise. "Why, so it is, nine-thirty already. Whose job did

you say I should charge for your first hour's work this morning?" he questioned. "Or should I just knock it off on next year's vacation?"

"Aw, cut it out," growled Larry. "It's too early in the morning for that stuff, an' besides I got troubles. I was supposed to take eggs home last night, an' I forgot them.

When I get up this morning the old woman makes me go down to the store, get the eggs, an' when I got back she said I had to fry 'em, too. All that takes time. You know how women are, Pop?"

"Sure," replied Pop drily as he ambled out toward the Buick. "And I know you, too. After all, I've been with you about eight hours a day for the last twenty years, Sundays and holidays excepted, an' time out for coffee an' reading comic books."

When Pop came back from road testing the car, he went directly to Larry's workbench where Larry was busily engaged in overhauling a generator.

"It certainly sounds like pinion bearings," he commented.

Larry nodded.

"If you weren't so wrong on this one," said Pop, "I'd swear you were right."

"Me too," said Larry. "I'm always right, except in cases like this where there's something wrong with the car."

"And usually," Tommy butted in, "there's something wrong with cars that come in here."

"Since you're sure that rear end is O.K.," said Pop, "I think we can discount that, and that seems to me to lead to a rather logical conclusion. That sound could be the rear transmission mainshaft bearing."

"Not in the rear end," said Larry. "Transmission bearings are still put into transmissions."

"You get brighter every day," remarked Pop. "It took me fifteen years to teach you that. But it could be that the sound of a bad rear transmission bearing is telegraphing back along the torque tube. I've known of cases like that to happen, and it certainly seems like a good gamble. Especially when you're so sure that the rear end is O.K."

"Look, Pop," said Larry, "we've got to get this job out by three o'clock. You want us to pull the transmission out, disassemble it and replace it, and you're willing to gamble that we'll find the cause of the trouble because once you knew a guy who heard a sound telegraphed back the torque tube. Does that make sense?"

(Continued on page 96)

A Lighter-Brighter

PACKAGE OF SAFETY—Grote FLARES

FULL SIZED REFLECTOR FLARE PACKS IN THE MOST COMPACT SET — TAKES LESS SPACE IN CAB OR TOOL KIT



No. 70 FLARES, singly and in sets of 2 or 3, with or without flags, in metal case.



70-A



90

Not a feeble wink, but a bright glare of light that says "Danger" in good or bad weather. Visibility one-half mile in full reach of approaching headlights. Made with Grotelite shatterproofed plastic lenses, mounted in folding metal standards. Easy to set up — Non-skid and secure in a high wind. They meet or exceed all I.C.C. and State candlepower reflection requirements. Grote oil flares are large capacity, made with seamless bottom that cannot leak — equipped with storm canopy over the wick, to control draft — they will not extinguish in snow or rain.

See your jobber for Grote Truk Line lamps, flares, reflectors. Write for complete catalog.

THE Grote
MFG. CO., Inc.
BELLEVUE, KY.



W-212

WARNING LAMPS

Heavy duty construction for ambulance, School bus, Civil Defense Official cars and police vehicles.



252



W-250

No. 90 and 90-B OIL FLARE
— Flare singly, for use in safety metal box or in racks for outside mount.



STAR BODY SOLDER Works Faster... Easier

Use STAR Body Solder to increase your profits on each body repair job.

Only STAR has these outstanding advantages: melts easier than old-fashioned bars... stays plastic long enough to paddle to a smooth porosity-free surface... does not run off the work... cuts waste. It is easier to handle, too, because of its unique shape... works faster, saving labor and materials. Get it from your local jobber.

Federated Metals Division



AMERICAN SMELTING AND REFINING COMPANY • 120 BROADWAY, NEW YORK 5, N.Y.

"It does to me," said Tommy. "I'd rather gamble on Pop's intuition than on some people's scientific diagnosis."

Larry sizzled him with a glance. "Ever notice how heat affects kids," Larry said to Pop. "On the little ones it breaks out in a heat rash, but on the bigger ones it breaks out on their tongues. Gives them an awful nasty disposition

for a few days. But never mind him. He's not bad as kids go."

"To get back to the subject," said Pop. "I think you'd better pull the transmission. I'll gamble on that rear transmission bearing and I'll take the blame from Mac if his car isn't ready. With both of you working on it, you'll have it done by three."

Larry's look was intended to

reply that he thought Pop was running him a little short on time, but he set to work immediately.

When the transmission was out and disassembled, Larry called Pop in. "Funny thing, you know, you were lucky again. Look at the inside of the rear bearing. It's about as rough as I've ever seen."

Pop picked up the bearing and gave it a spin, nodding slowly to himself. "I just happened to go downtown," he said. "And while I was down there I just happened to pick up another rear mainshaft bearing for a '47 Buick Special, just in case we happened to have one come in that needed a rear mainshaft bearing. Here it is in my pocket now." He grinned as he slipped the box to Larry.

Shortly before three, Larry came into the office. "All set to road test it," he said. "Want to come along?"

Pop shook his head. "No, I better stay here and keep Mac cool while you try it out. Good luck."

But Larry was back himself before Mac had put in an appearance. "Perfect," he said. "Not the slightest whisper of a sound. Boy, you sure can call 'em, Pop. Don't you ever go wrong?"

"Not if I can help it," said Pop.

"Reminds me of a story my wife brought home from the beauty parlor," Larry grinned as he recalled it. "Seems a woman was out buying a bed but couldn't decide between a mahogany or a brass one. At last the clerk got a little tired waiting for her to make up her mind.

"You can't go wrong on a brass bed," he said finally.

"The woman thought that over for a minute. 'Well,' she said, 'I'll take the mahogany one.'"

In SOME countries this sign means
"Pedestrian Crossing"

But wherever you are
THIS SIGN...



**...SPEAKS A
UNIVERSAL
LANGUAGE**

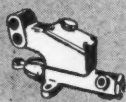


"Command Performance" must be at every brake pedal—no matter where you are—no matter what the condition may be. That's why you owe it to yourself and your customers to check hydraulic lines and cylinders for leaks or worn parts.

Play Safe! Re-fill master cylinders with EIS—the S-TOP Quality Brake Fluid! Works perfectly in all seasons—at all temperatures. Use EIS Super 40 (moderate) or EIS Super 50 (heavy-duty). They meet or exceed SAE specifications. Packaged in a complete line of sizes from 3 oz. refills to 55 gallon drums.

EIS AUTOMOTIVE CORP., MIDDLETOWN, CONN.

**Ask Your Jobber
or Write Us Direct**

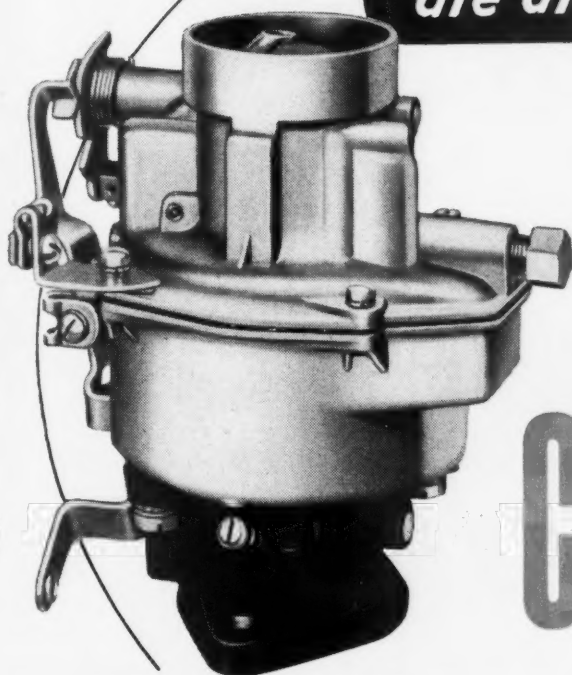


One of a series of "EIS SIGNS OF SAFETY" messages published in cooperation with the National Safety Council.



Here's the BIG market...

9,000,000 CHEVROLETS
are driven by prospects for



ROCHESTER CARBURETORS

**ROCHESTER CARBURETORS NOW
ORIGINAL EQUIPMENT ON
THESE GREAT CARS**

CHEVROLET

1950-1951 models

OLDSMOBILE

1949-50-51 models

PONTIAC "6"

1951 models

Get Your Rochester Carburetor Display Now

Just order a small assortment of Rochester Carburetors now and you'll also receive an attractive display and window streamer to sell Rochester Carburetors for you. Call your distributor, or write us, today.

**And you can serve this tremendous market by stocking
just two models of the great Rochester Carburetor!**

Why fight for your share of new carburetor sales when it's so *easy* to sell the famous Rochester Carburetor? The 9,000,000 owners of Chevrolets built between 1932 and 1949 can now have the Rochester Carburetor installed. It's the same carburetor—providing the same performance—that is part and parcel of the 1951 Chevrolet! And, naturally, owners of older Chevrolets want 1951 performance when they have a new carburetor installed. Thus, to sell Rochester Carburetors, just display them . . . tell your customers about them . . . and the sales are yours!

Look at the Advantages Rochester Carburetors Offer

- No fuel loss on any incline.
- Smooth acceleration on turns—at any speed.
- Easier starting in hot weather.
- Continuous fuel flow.
- Power mixture readily available.
- Acceleration—hot or cold.
- No metering adjustments.
- All metering parts in cover.
- Permanent idle tube.

ROCHESTER CARBURETORS—A UNITED MOTORS LINE
Available everywhere through
UNITED MOTORS DISTRIBUTORS



ROCHESTER PRODUCTS

DIVISION OF GENERAL MOTORS CORPORATION, ROCHESTER, NEW YORK

This advertisement appeared in the Saturday Evening Post 12 years ago — told American motorists for the first time about the amazing savings they could expect from a Fram Oil & Motor Cleaner.

THE MIRACLE OF FRAM

IT COSTS YOU NOTHING IT SAVES YOUR MOTOR

THE OIL FILTER THAT FILLS WITH OIL



STANDARD EQUIPMENT
FRAM is standard equipment on these famous automobiles — engines —

PASSENGER CARS
Ford, Chrysler, Packard, Buick, Oldsmobile, Cadillac, Lincoln, Mercury, Studebaker, Graham-Paige, Hudson, Nash, and many others.

COMMERCIAL TRUCKS
Ford, Chevrolet, GMC, International, Kenworth, Mack, and many others.

MOTORCYCLES
Harley-Davidson, Indian, and many others.

BOATS
Evinrude, Johnson, and many others.

FRAM is the remarkable oil filter that does such amazing things for your automobile, truck, tractor or motor boat engine that the results are almost unbelievable. So much so that people say: **FRAM COSTS NOTHING** — Because the savings on oil in the first year alone are more than the installed cost of the FRAM.

FRAM SAVES MOTORS — By keeping the motor constantly lubricated with fresh, clean oil all the time repairs and motor life is greatly extended.

PROTECT YOUR CAR FOR SUMMER DRIVING
Take your car to any service station or garage where you see the orange and black FRAM sign, and have them check your car, change your oil to summer grade, change the FRAM cartridge, or if your car isn't FRAM equipped, install a FRAM and start giving FRAM operating economy — eliminate costly repairs and extra wear.

IS YOUR CAR "FILTER" EQUIPPED?
If your car is equipped with a conventional "oil filter", you can get the advantage of Clean Oil by installing the FRAM. It's so simple. Ask your dealer.

FLUENT MANUFACTURING COMPANY . . . EAST PROVIDENCE, R. I.
Sole U.S. Distributors: J. C. Adams Co., Ltd., TORONTO
Canadian Distributors: A. C. Adams Co., Ltd., TORONTO

FRAM Oil & Motor Cleaner
THE MODERN OIL FILTER

Back in 1939,
this **MIRACLE OF FRAM** started

AN ENDLESS CHAIN of PROFITS for YOU...



FRAM! WORLD'S GREATEST ENGINE Saver

Keeps Engines Clean Saves You Money



FRAM FILTERS

FRAM Keeps Engines Clean Saves You Money

Keeps your car clean and efficient - Get peak performance with a Fram Replacement Cartridge



FRAM FILTERS

Keep Your Oil and Engine CLEAN

Get a new Fram Replacement Cartridge for peak protection against engine killing sludge!



FRAM FILTERS

Powerful National Advertising in Leading Magazines . . .

... and this profit chain is growing bigger each year ... as the demand for Fram Filters and genuine Fram Replacement Cartridges continues to spiral upward. This year, with car and truck registrations nearing the 50-million mark ... with the most powerful advertising and merchandising program in Fram history backing you up ... with a market potential undreamed of when the Fram Sales Miracle started ... **YOUR FRAM FILTER AND CARTRIDGE PROFIT CHAIN STILL REMAINS ENDLESS...**



BUT... BIGGER NEWS is Coming
A TREMENDOUS STORY OF
ANOTHER FRAM MIRACLE

For Details Turn Page



FRAM Advertising and Merchandising are Geared to Keep Your Profit Chain Endless



Metal Display Stand



Dynamic Display

hundreds of inquiries on Fram's
essential for you!

[illegible]

Now on sale, just at \$4.95, "Triple" protection against engine wear. As a leading trouble-shooter, you know that engine life is the key to longer, trouble-free life for all your cars and trucks. Cleaner, Triple provides full strength and low loss. Has triple the protective, triple the economy guaranteed! See your dealer today!

Only FRAM offers you
Complete Engine Protection
Fram Triple's sturdy, sturdy vital point... and... the doubly continuous... remove all acids from engine life... remove harmful impurities from... and... and in engine power, performance and life.

FRAM CORPORATION, Providence, R.I.
R. I. 02860 • C. M. M. Co., Ltd.
Toronto, Ontario.

FRAM RADIATOR & WATER CLEANER

Stop Rust, Scale, Dirt
with **NEW FRAM** Radiator & Water Cleaner

Only 19¢
per quart

FRAM
Radiator & Water Cleaner

**Ends Water Currents of Corrosion
Preventing to Save Millions
Millions Every Year**

FRAM
Radiator & Water Cleaner

END COOLING

FRAM Radiator & Water Cleaner
Stops Rust, Scale and Dirt-The
Major Causes of Overheating

FRAM
Radiator & Water Cleaner

FRAM
Filters

4364
Protects the Radiator

Dramatic National Advertising

Just as Fram F-4 Filter sales built the biggest single cartridge market for Fram C-4.....so the sensational FRAM FR-10 Radiator & Water Cleaner gives you a chance to build another sales miracle on CR-10 Cartridges!

Your market for this red-hot product is bigger than it ever was for Oil Filters! The need for cooling system protection is vital (over \$100,000,000 annually is spent for labor and parts on cooling system repairs alone). The Radiator & Water Cleaner is a "natural" for passenger cars, trucks and tractors. Installation and cartridge change are quick and easy.

It's the same (only bigger) Fram profit story for you—every sale of a Fram Radiator & Water Cleaner starts an endless chain of repeat sales for Fram replacement cartridges.

And, to help boom this promotion into another sales miracle—Fram launches this all-out advertising and merchandising campaign to help you to big sales, bigger profits this fall. Don't delay another minute—get complete details on the promotion from your Distributor now!

Fram Launches Powerful Program on Complete Cooling System Protection

Billboards from Coast to Coast



FRAM
OIL • AIR • FUEL • WATER
FILTERS

New Products Continued from Page 66

353. Engine Analyzer

King Electric Equipment Co. announces that the new King Model MT-225 Engine Analyzer is now available. Six separate King testing units, Coil Ignition Tester, Spark Plug Tester, Condenser Tester, VAR Tester, Cam-Angle Tachometer Tester and an Exhaust Gas Analyzer form a complete

testing unit. They lock in place on the display rack mounted on a portable cabinet.

Each King tester features 5-inch D'Arsonval meters, and permanently attached leads are designed to eliminate electrical losses. The cabinet provides table space for small tools and parts. The storage compartment with

partitioned battery space has a full-length hinged door. Mounted on swiveling wheels equipped with foot operated locking brakes, the entire unit is portable. Individual analyzers can be removed for independent use in any part of shop or for road testing.

354. Drain Valve

Monroe Standard, Inc., announces availability of the Bar-Jon Push Pull Drain Valve, for use in radiators, blocks and other assemblies where frequent draining is necessary. The valve opens when pushed and closes when pulled. The tip of a screwdriver will actuate the valve even in rela-



Compare QUALITY

The same standards of excellence as in Neapco Universal Joints—correct design, accurate machining, quality materials—PLUS an unequivocal guarantee.

Compare INTERCHANGEABILITY

All parts FIT... they look like and interchange with originals. Controlled accuracy in manufacturing assures this—makes Neapco easy to sell, easy to install.

Compare COMPLETENESS

Wheel Suspension Parts, Tie Rods, Tie Rod Ends, Drag Links, King Bolt Sets, Coil Springs, Chassis Parts Accessories—all in a full range of sizes, intelligently catalogued and uniformly packaged.

Compare AVAILABILITY

The COMPLETE line is in stock NOW. 16 warehouse stocks are strategically located to speed deliveries to you. The finest Chassis Parts made are available to you now through your Neapco Jobber.

NEAPCO PRODUCTS INC.

NEAPCO

POTTSTOWN, PA.

*
by the makers of the famous Neapco Universal Joints



tively inaccessible places. This part is available in 1/8 inch, 1/4 inch and 3/8 inch National Pipe
(Continued on page 104)



How to get MORE Brake Relines and make MORE PROFIT



BIG BUSINESS
IN A SMALL
PACKAGE



GATKE DUZ-ALL DEAL

includes

Full coverage assortment
of 72 DUZ-ALL Liners
Set of 6 DUZ-ALL Drill Jigs and Anvil

Complete Cost to Dealer, \$59.00
F. O. B. Warsaw, Ind.

The GATKE DUZ-ALL System is the
simplest of all relining methods. A single
chart is the only reference needed.

With this \$35.00 inventory you can reline
brakes of any passenger car or light truck—
no delay—no waiting.

You do the complete relining job and get
ALL the PROFIT.

The famous *GATKE Grooved Liners give
smooth, even deceleration with tremendous
power in emergencies—bring repeat business
to your shop.

*The sectional lining now used by Cadillac
and Buick follows the grooved principle in-
vented by GATKE and used in GATKE
Grooved Brake Lining for 28 years.

Ask your GATKE JOBBER or clip and mail
the coupon for details.

CLIP HERE

Gatke

A GREAT NAME IN BRAKE LINING

GATKE CORPORATION—Automotive Division
General Offices: 228 N. LaSalle St., Chicago 1, Ill.

MAIL THIS COUPON

Send facts and figures on how I
can get MORE brake relining jobs
and make MORE profit per relining.

Name _____

Street _____

City _____

State _____

WICO Autostop..

brings new driving comfort



The pickup may be wonderful!
The power may be marvelous!
But does your car stand still
when you want it to?



Stops back-sliding

No need to "slip" the clutch or "ride" the accelerator when stopped on an uphill grade to prevent rolling back. You brake the car to a stop, touch the Magic Switch on the gearshift lever, and the car stays where it is until you step on the gas. With AUTOSTOPS on your customers' cars you'll get no more complaints about stalling when starting on uphill grades.

Stops rolling forward

At traffic lights or on hills or when parking, it's a nuisance to shift your foot back and forth from the accelerator to the brake pedal — and it's still more of a nuisance to use the hand brake. The AUTOSTOP keeps the brakes on and the accelerator releases them.

The new AUTOSTOP, made by one of the oldest companies in the automotive accessory business, has only four major parts: an additional cylinder put into the brake line, a relay usually mounted on the fire wall, an "on" switch on the gear-shift lever, and an automatic "off" switch on the throttle rod. It's simple; it's foolproof; it works!

**FREE
SALES
HELPS**

Send for your free kit of AUTOSTOP selling helps.
Here's what you get:

1. Brilliant banner for showrooms and service floor.
2. 3-color illustrated folders to mail or give to customers.
3. Mailing cards with a return card setting up a time to install an AUTOSTOP.
4. AUTOSTOP newspaper advertisements.
5. Price-discount sheet.
6. Installation instructions.

WICO Has Meant Dependable

Automotive Accessories Since 1897



WICO ELECTRIC CO., 71 Phelon Ave., West Springfield, Mass.
Please send me your kit, including free advertising materials on the AUTOSTOP.

Name (please print) _____

Firm _____

Street _____

City or Town _____ State _____

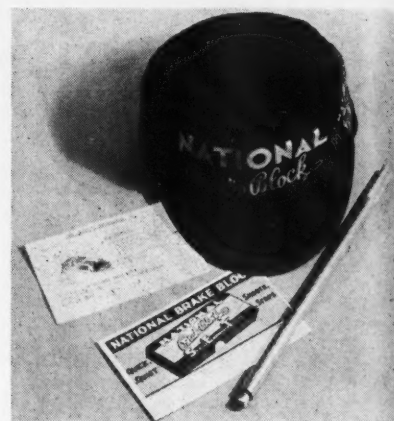
New Products

Continued from Page 102

Thread sizes. The manufacturer states that it is self blocking, leak proof, self cleaning and corrosion resistant. It offers unrestricted flow and is interchangeable with the conventional style.

355. Brake Service Deal

National Brake Block Corporation has developed a new "multi-assortment" packaged brake service deal which includes ten assorted sets of National Brake Block. They supply relined coverage for 90 per cent of the popular cars. With each assortment comes



free "Business Aids," consisting of one "Work Easer" locking brake spring tool, a tool designed especially for brake servicemen; 100 "Customer-Producer" postcards and 50 advertising blotters, which the dealer or servicemen can imprint with his own name. Also, six shop hats are included.

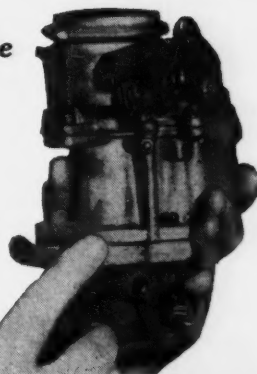
(Continued on page 106)



"Oh, it's you—the fellow back at the service station. For a minute I thought I threw a rod or something!"

"Less cost for customer"

reports *Jesse F. Moore*
Fairview, W. Va.



"I find that rebuilding the carburetor myself with the Hygrade System results in less cost for the customer and brings in more of this business with no real effort on my part," says Mr. Moore. "The Hygrade repair kits are best in my book."

save on gas

let us start your carburetor now

HYGRADE SYSTEM

\$69⁷⁵ complete!

Includes the priceless Hygrade Manual, assortment of 20 kits to repair all Chevy, Plymouth, Ford carburetors; all the tools and equipment you need; cabinet; a continuing bulletin service; metal signs, outdoor banner, etc. (This outfit is worth over \$100.00.)

By building a "rep" as a carburetor expert, you attract more carburetor jobs; more tune-ups too. And when you turn out a rebuilt yourself, you can stake your reputation on it because you know you replaced *all* the parts that wear with brand new parts. Find out how you can qualify as a full-fledged carburetor repair man and re-builder in one-week's time, with the help of this revolutionary new system. Take the first step now. Write for more information. HYGRADE PRODUCTS DIVISION, Standard Motor Products, Inc., 35-35 Thirty-fifth Street, Long Island City 1, New York.

HYGRADE

FINGERTIP SYSTEM OF CARBURETOR REBUILDING

by the makers of Blue Streak Ignition Products

New Products Continued from Page 104

356. Terminal Lifter

Herbrand Division of the Bingham-Herbrand Corp. is manufacturing a new battery terminal lifter and scraper. The manufacturer states that a badly frozen or corroded terminal snaps up easily under its powerful leverage. A special release joint separates the tool into two pieces, one section with a serrated nose for cleaning

the inside of the terminals and the other with sharp jaws for scraping the posts.

357. Car Watch

The Oldsmobile Division of the General Motors Corp. is marketing a new 15 jewel car watch, designed for mounting on the steering wheel. The movement of the

steering wheel keeps the watch wound. The timepiece has a Swiss movement. The turning of the steering wheel and the normal movement of the car actuate the watch's pendulum weights, winding the watch's movement. It is



stated that five miles of city driving or 20 miles of open highway driving will keep the watch running for about two days. When the movement is fully wound, it will run for a period of nine days. The watch is optional at extra cost on Oldsmobile cars.

358. Front End Chart

Moog Industries, Inc., has published a Wall Chart on front end service work.

This chart measures 41 in. by 43 in. and is a combination Parts Catalog and Service Wall Chart. It contains exploded group illustrations on all cars, with kit numbers easy to read, coil action parts and required King Bolt Kit shown.

(Continued on page 108)

3 TO 12-TON HYDRAULIC

Axle Jack

- rugged, trouble-free
- instant lifting action
- leak-proof base
- easy to service

Exclusive "in-line" valve action starts the lifting operation instantly . . . eliminates lost motion, wasted "elbow grease".

AUSCO Jacks

LATEST AUSCO JACK CATALOG contains the complete showing of all AUSCO Hydraulic and Mechanical Jacks. Send for your free copy today.

AUTO SPECIALTIES MFG. CO. • DEPT. MA-8, ST. JOSEPH, MICH. • Other plants: Hartford and Benton Harbor Mich.; Windsor, Ontario, Canada

RS437HR



Kelsey-Hayes

...in DEFENSE
and PEACE-TIME
production

Kelsey-Hayes
Los Angeles, Cal. Plant

Kelsey-Hayes
Detroit, Mich., McGraw Plant

Kelsey-Hayes
Windsor, Ont., Canada Plant

Kelsey-Hayes
Detroit Mich., Military Plant

Kelsey-Hayes
Jackson, Mich. Plant

Kelsey-Hayes
Davenport, Iowa Plant

Kelsey-Hayes
McKeesport, Penna. Plant

FOR MILITARY AND CIVILIAN USE:

- Wheels, brakes, hubs and drums for cars, trucks, tractors . . . and cargo trailers, troop carriers, gun carriages, tanks, etc.
- Electric brakes, brake power equipment, power chambers . . . and valves for all types of military and civilian vehicles.
- Shells and shell casings, rockets, and aircraft engine parts, etc.

KELSEY-HAYES WHEEL COMPANY

MILITARY AVE., DETROIT 32, MICHIGAN

New Products Continued from Page 106

359. Bench Grinder Catalog

Poly Products announces a new eight-page catalog containing information on their complete line of ball bearing bench grinders, arbors, sanding discs and face plates. Included are such specifications, dimensional diagrams, and application suggestions for

using the saw and adapter arbors to build a wide variety of special production tools.

360. Lining Catalog

Grizzly Manufacturing Company announces publication of the "Catalog '51," a new 64-page book devoted to specifications and prices of Grizzly Brake Linings for all automotive applications.

The book contains complete up-to-date application data on cars, buses, trucks and tractors. Also, complete size specifications data on FMS Set Numbers, as well as the quantity and size of rivets or bolts needed for each. The "Time Saver" section, a feature of this catalog, is a single reference showing how and at what price each FMS may be serviced with drilled or undrilled Syncro-Set (regular duty) or Silvertip (heavy duty) segments for riveting, or Saffibond (bonding agent applied) segments for bonding.

361. Spring Shackle Jack

Rinck-McIllwaine, Incorporated, announces the Rimac spring shackle jack. This tool is designed to aid a mechanic in moving

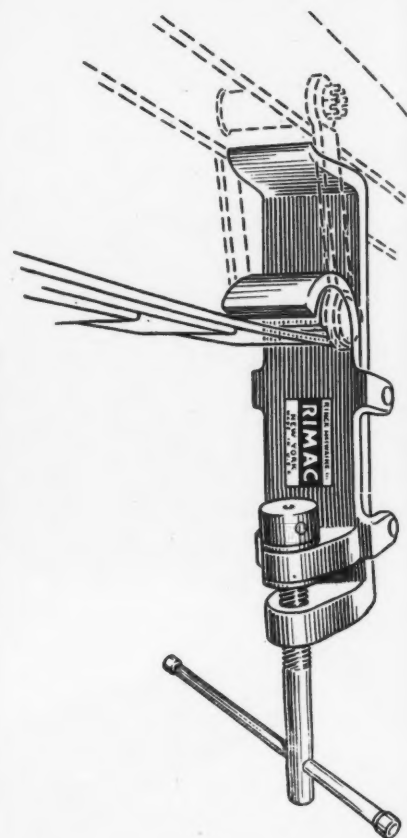


GOOD FOR YOUR BUSINESS

Even under toughest operating conditions you're safe in choosing Burd Super Hi-Speed Piston Rings. They're good for restoring power and compression. They're good for controlling oil. They always come through with what you expect from top-notch piston ring performance. Try a set of Super Hi-Speeds and watch results. You won't be disappointed!

ING CO. ROCKFORD, ILL.

BURD PISTON RING CO.
DIVISION OF
THE GABRIEL COMPANY
Rockford Illinois



spring shackles. The spring can be spread from the chassis to the exact position needed for disassembling or replacing rubber shackles, bushings or other parts with one hand. It adjusts the spring until holes are in position in alignment with shackle arms parallel and holds it in position while the shackle is removed and parts replaced.

(Continued on page 110)

BELT STOCK CHANGE-OVERS ARE A PLEASURE WHEN YOU GO *FACTORY FRESH!*

Here is an actual photograph of dealer's stock which has been changed over to the Durkee-Atwood *Factory Fresh* program. Can you tell which are the *Factory Fresh* V-belts in plastic-sealed packages and which are the changed-over stock in unsealed packages? For the answer, see the bottom of this page.



You're in business right from the start when you change over to the Durkee-Atwood *Factory Fresh* V-Belt program. Your present stock is re-packaged so that it looks the same as the *Factory Fresh* V-Belts you add to fill in needed sizes!

This big-league merchandising program gives you the cleanest, freshest-looking stock of V-belts in town. No wonder the *Factory Fresh* idea is catching on fast with dealers everywhere—they recognize it's the hottest thing in the belt business!

Change over to Durkee-Atwood today! Join the champion in the plastic-sealed package—the only V-belt that's **GUARANTEED NEW** and *Factory Fresh!*

*Nos. 1, 4, 5, 8, 10, 11 and 12 are old stock re-packaged at time of change-over. The other belts are our famous *Factory Fresh* belts in plastic-sealed packages. Your stock can have this same "beauty-treatment." See your Durkee-Atwood jobber or mail us the coupon at the lower right.

Factory Fresh

**WHEN YOU
BUY 'EM!**

Factory Fresh

**WHEN YOU
SELL 'EM!**

**DURKEE-ATWOOD
COMPANY**

MANUFACTURERS OF V-BELTS, RUBBER AND
CHEMICAL PRODUCTS SINCE 1910

GET THESE EXCLUSIVE

Factory Fresh!

ADVANTAGES

PLASTIC-SEALED PACKAGE excludes dust, dirt, sunlight, moisture, oil and grease—retards oxidation. Durkee-Atwood V-Belts are **GUARANTEED NEW** and *Factory Fresh* as long as the sealed package is unbroken!

ALL INTERCHANGEABILITIES, SPECIFICATIONS AND CAR APPLICATIONS are listed right on each package. You don't have to refer to belt charts or catalog sheets. This complete information simplifies and speeds up replacements!

CHANGE-OVER PACKAGES for your present stock duplicate the appearance of the *Factory Fresh* package. Fill in with Durkee-Atwood V-Belts as you go along, and you'll soon have your complete stock of *Factory Fresh* V-Belts in plastic-sealed packages!



Copyright 1951
Durkee-Atwood Co.

MAIL THIS COUPON TODAY!

DURKEE-ATWOOD CO., Dept. MAB, 215 N.E. 7th St., Minneapolis 13, Minn. Gentlemen: Without obligation, tell me how I can make your "beauty-treatment" change-over to Durkee-Atwood *Factory Fresh* V-Belts and earn greater profits. Also tell me the name and address of your nearest jobber.

Name _____

Firm _____

Address _____

City _____ State _____

New Products Continued from Page 108

362. Thermostats

Standard-Thomson Corporation has announced a complete line of automotive thermostats which includes 56 numbers for heavy duty trucks and buses as well as passenger cars and lighter trucks.

363. Tool Chest

Plomb Tool Company announces

the addition of a Proto master tool chest. The new chest measures 27 in. x 12 in. x 15 in. and has two full width compartment drawers, four half-width three-compartment drawers and a full width top section partitioned into three compartments. The 21 $\frac{3}{4}$ in. wide tote tray also has three compartments. The box is constructed of welded heavy gage steel, with double-



new **OTC** HYDRAULIC SLEEVE PULLER & INSTALLER

FOR TRUCKS • TRACTORS • POWER UNITS

pull or install cylinder sleeves with the OTC POWER-TWIN in minutes instead of hours . . .

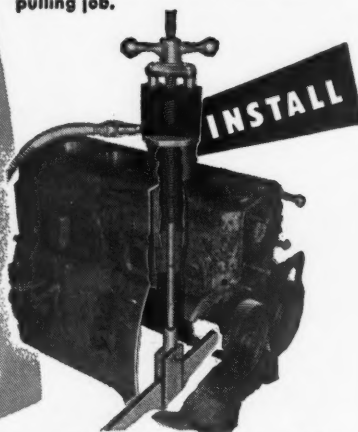
"POWER-TWIN PAYS FOR ITSELF IN ONE DAY'S OPERATION."

These are the actual words of a shop owner the first time the Power-Twin Hydraulic Sleeve Set was used in his shop. You too will be amazed at the ease and speed with which this new OTC tool removes and installs wet or dry cylinder sleeves. What used to be a "Tough Job" now becomes simple with the sensational OTC Hydraulic Sleeve Set.

- Converts all OTC Sleeve Pullers to hydraulic power by the addition of only a few parts.
- Removes and installs either wet or dry 3" to 6" sleeves faster, easier.
- Operates on over 200 makes and models of trucks, tractors, busses and power units.
- Fully adjustable to provide clearance regardless of position of cylinder head studs . . .
- Centers accurately over bore.



Removing either wet or dry sleeves is simple with the new OTC Hydraulic Puller. Above is typical sleeve pulling job.



Dry cylinder sleeves replaced quickly and easily without damage or distortion with the new OTC Sleeve Installing Set.

OWATONNA TOOL COMPANY
321 CEDAR STREET • OWATONNA, MINNESOTA

walled sides, double-reinforced top and bottom and rounded corners. The top is supported on a full-length piano-type hinge and overlaps the balance of the chest to make a tight seal.

364. Relining Folder

The Gatke Corporation is publishing an illustrated folder showing comparative time required for a typical brake reline job with the two methods—conventional brake lining sets, and the new Gatke Duz-All System.

365. Tune-up Tester

Meyer & Welch, Inc., is marketing a tester for use in carburetor tune up. A leaking diaphragm, needle seat or the vacuum at which the economizer valve opens can be determined with this tester, the firm states. This tester is limited to Economizer valves used in all Ford carburetors and up to 1949, on the Lincoln and Mercury.



"Another thing we've got to be worrying about is more money for me."

Everyone...yes
everyone will buy
CASCO
 accessories this fall!



CASCO SPOTLIGHTS

FINEST MADE! INNER CONTROLLED!
 Powerful sealed-beam light turns in a complete circle. Smart, streamlined design... heavily chrome-plated.

JUNIOR: No. 540 Thru-the-Post
 No. 535 Thru-the-Door **LIST \$17.50**
STANDARD: No. 541 Thru-the-Post
 No. 536 Thru-the-Door **LIST \$18.00**

(Standard Models also available for 12 volts)



CASCO GLASS WINDSHIELD DEFROSTER

SAFE! SURE! PROFITABLE! Exclusive Switch Control plug provides positive "on and off" heat control. Defroster, 8" x 16", works wonders in sleet, ice, snow and fog.

No. A-15 for 6 Volt Systems **LIST \$4.00**
 No. A-16 for 12 Volt Systems **LIST \$4.45**

CASCO 2-SPEED 6" RUBBER-BLADED AUTO FAN

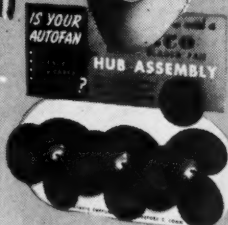
QUIET! DEPENDABLE! Fans have chrome plated metal trim and swivel arm. Motor case is die-cast, has universal mounting brackets for quick, easy installation.

No. F-11 (6 volt) **LIST \$8.50**
 No. F-12 (12 volt) **LIST \$9.50**

CASCO HUB REPLACEMENT ASSEMBLY

TREMENDOUS NEW MARKET EVERY DAY. Worn out fans of every make are replaced daily with the reliable CASCO Hub Assembly. Merchandising package includes 6 Hub Assemblies — each 3 mounted on display card.

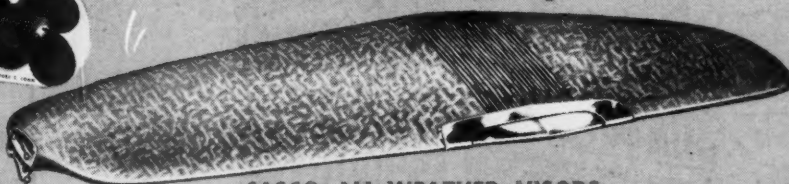
No. F-14 **LIST \$2.00**



**CONSISTENT
 NATIONAL
 ADVERTISING**

in great mass magazines like the Saturday Evening Post, makes CASCO a familiar name to your customers.

**THE SATURDAY EVENING
 POST**



CASCO ALL-WEATHER VISORS

WORLD'S BIGGEST SELLER! ONE MODEL FITS 90% OF ALL CARS! Aero-aluminum, finished in satiny pearl gray Hammerloid enamel, with beautiful chrome brackets and trim. Can be repainted, if desired.

V-13 series **LIST \$21.95**

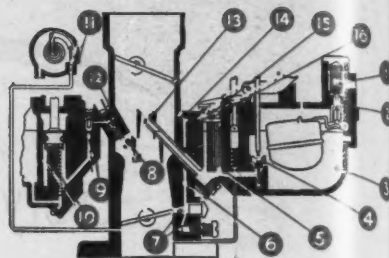
DEPENDABLE PRODUCTS FOR OVER A QUARTER CENTURY



CASCO PRODUCTS CORP., BRIDGEPORT 2, CONNECTICUT

**GUMOUT
FORCED-FLOW
CLEANING**

is the *only* way that deposits can be removed from the "16 Pass-Ports to Carburetor Trouble" ... without taking the carburetor off the engine. GUMOUT "on-the-engine" Carburetor Cleaning is a 20-minute job that *any* one can do!



**THIS LETTER
MAY BE WORTH
\$600⁰⁰ TO YOU**



Cleaning a Ford Carburetor "on-the-engine" with GUMOUT.



PENNSYLVANIA REFINING COMPANY

REFINERY AT KARNB CITY, PA.

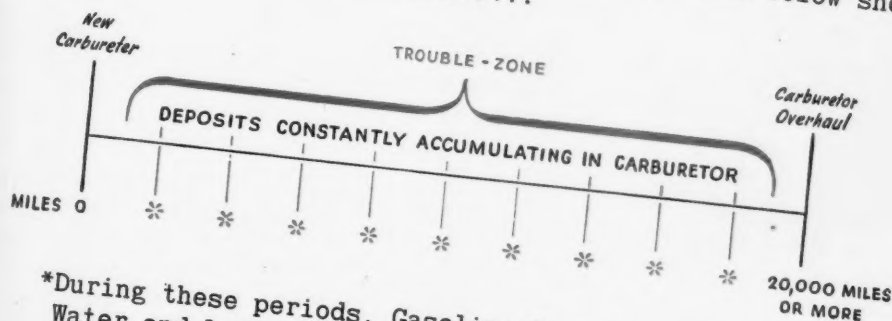
PENN DRAKE PETROLEUM PRODUCTS

TELEPHONE TYLER 1-2400

OHIO DIVISION
2686 LISBON ROAD
CLEVELAND 4, OHIO

To: All Car Dealers and Independent Repair Shop Operators

GUMOUT "on-the-engine" Carburetor Cleaning is a regular, required service job—just like changing oil, only faster! It is a routine, 20-minute cleaning service...not a complicated carburetor overhaul job. The sketch below shows how it fits into your business...



*During these periods, Gasoline Gum, Sludge, Varnish, Water and Lead Deposits in carburetors cause engine troubles that are frequently blamed on other conditions. That's why carburetors should be cleaned regularly with GUMOUT. It's a must with every tune-up job and at the first sign of trouble.

One case of GUMOUT, and the GUMOUTER, will enable you to offer CARBURETOR CLEANING SERVICE. This investment of \$24.55 will give you a profit of \$47.75 (if you only charge \$3.00 a job). Simply clean 24 carburetors a month with GUMOUT and you make \$604.80 extra profit a year. Instructions and Wall Charts are furnished free!

ORDER GUMOUT AND THE GUMOUTER FROM YOUR JOBBER TODAY!

Clean-up with GUMOUT!

S. This is all new business!

**Don't wait!
Send this coupon now!**

If your jobber can't supply you with GUMOUT... send us your order and your jobber's name... and we'll give you a can of GUMOUT free!

GUMOUT DIVISION
Pennsylvania Refining Company
2686 Lisbon Road, Cleveland 4, Ohio

Please send

- _____ cases of GUMOUT (24 pints each) at \$21.60 per case
- _____ 1-gallon cans of GUMOUT at \$6.45 each
- _____ GUMOUTERS at \$2.95 each
- _____ additional information

Name _____

Address _____

City _____

Zone _____

State _____

Jobber's Name _____

MA-306

"INDISPENSABLE"

says **HARRISBURG BUICK COMPANY**

HARRISBURG, PENNSYLVANIA



ROSS S. JENNINGS, PRESIDENT AND TREASURER

**HARRISBURG
BUICK
COMPANY**



C. M. KROUT, SECRETARY

218 South Cameron Street

HARRISBURG, PA.

Sales and Service

Harley-Davidson Motor Company
Milwaukee 1, Wisconsin

Dear Sir:

It may be of interest to you to know that we were the pioneer users of the Harley-Davidson Servi-Car in 1932 and have been a constant user ever since. At present we are operating two units.

We find that Harley-Davidson Servi-Cars operate very economically and trouble-free, and considered as a piece of service equipment, are indispensable to our organization. We wish to compliment you at this time on the very efficient equipment you manufacture for our use.

Yours truly,

Ross S. Jennings

Ross S. Jennings
President



Servi-Cars can help you. Send for this free booklet. See your Harley-Davidson dealer.

SERVI-CAR

SERVICE SELLS MORE SERVICE

HARLEY-DAVIDSON MOTOR CO. • Dept. MA • Milwaukee 1, Wis.

Self Service

Continued from Page 51

the customers about their work and to give them free advice. Five regular mechanics, working a split shift to cover the 14 hours the shop is open each day, are available to do the portions of the work which the customers do not wish to do or cannot do themselves. Standard charges are made for the mechanics' work.

In the machine shop, however, the work is handled entirely by Woolley's mechanics in order to preserve the precision instruments. Regular charges are made for any work done here. Steam cleaning, which the customer does himself, is charged on the basis of \$5 per hour, with the average job taking about 15 minutes.

Woolley maintains a parts inventory valued at about \$10,000. He stocks all the fast moving items, such as electrical equipment, cables, bearings, pistons, and also keeps about 60 blocks on hand at all times. His own mechanics entirely rebuild old engines so that the shop has on hand about 25 complete engines.

Pesco Products Appoints Two New Managers

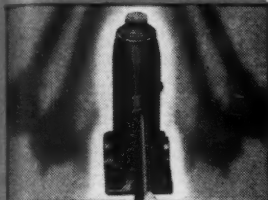
G. E. Campbell has been appointed works manager of Pesco Products Division of Borg-Warner Corp. Donald A. Sutherland has been named industrial sales manager.

Average Estimates on Body Bumping Quiz (Page 42)

1. 1949 Ford fender and hood.
Average time estimate: 22 hours.
2. 1950 Pontiac door bent.
Average time estimate: 19 hours.
3. 1938 Ford left front fender.
Average time estimate: 10½ hours.
4. 1950 Studebaker coupe door dished.
Average time estimate: 5½ hours.
5. 1949 Studebaker front fenders and hood.
Average time estimate: 30 hours.
6. 1946 Dodge left front fender.
Average time estimate: 9 hours.

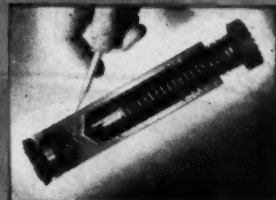
CHECK THESE IMPORTANT FEATURES WHEN YOU BUY PORTABLE HYDRAULICS

QUICK, EASY "POSITIONING"



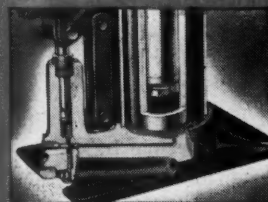
Walker "Series 900's" are designed to take an upright position automatically when lifted by the handle. The strong, malleable iron handle socket is located in the center of the jack and above the center of gravity. This famous Walker "Pendulum Balance" saves time and tempers when positioning the jack.

EXTRA RESISTANCE TO BENDING



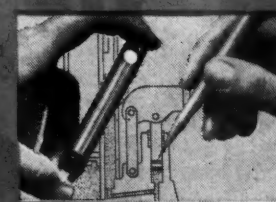
To resist eccentric loads at top height, the lower end of the lifting ram in Walker "Series 900" is solid steel—not hollow as in some jacks. The Walker "Solid End" ram gives extra strength where extra strength is needed most—strength to resist the bending force from inevitable side thrusts.

SMOOTH, DEPENDABLE LIFTING POWER



Efficient performance in any hydraulic jack depends upon internal valve action. In Walker "Series 900," suction and discharge valves work in perfect synchronization, at lightning speed. Closing action is always positive. This "Ryth-matic" valve action assures efficient, dependable operation.

LEAK-TIGHT HOLDING POWER



A jack must not only lift... It must also hold. If the alignment and fit of its parts is sloppy, jack fluid is bound to escape under the terrific operating pressures. In Walker "Series 900" vital parts are precision-machined to tolerances so close that load-holding ability is always assured.

You get **WALKER** *them all with...* **SERIES 900**

**PORTABLE
HYDRAULIC
JACKS**



6 Models from 1½ to
20 Tons Capacity

2 Super-Power Jacks
30 and 50 Tons Capacity



WALKER MANUFACTURING CO. OF WISCONSIN
Racine, Wisconsin

Walker Jacks, Lifts
Exhaust Silencers, Oil Filters

Now! THE ENTIRE **Permaccel** LINE HAS A Brand-new package design!

PERMACEL 77
INDUSTRIAL TAPES

CREPE PAPER MASKING TAPE
3/4 INCH WIDE x 60 YARDS

HERE'S PERMACEL 77 IN A STRONGER, EASIER-TO-HANDLE CONTAINER... AND THE BRIGHT NEW CANDY-STRIPE DESIGN!

PERMACEL 77 6 WAYS EASIER TO USE

1. Comes off roll easier, quicker!
2. Better quick stick!
3. Stronger, easier handling!
4. Takes curves easier!
5. Strips off cleaner, easier!
6. Easier, more accurate striping!

Permaccel 77
INDUSTRIAL TAPE CORPORATION, NEW BRUNSWICK, NEW JERSEY
Makers of @TEXCEL Cellophane Tape and a complete line of pressure-sensitive tapes for industry.

WRITE DEPT. 111 FOR Free Booklet "MASK 'EM QUICK AND EASY"

Robot . . .

Continued from Page 55

helps detect mistakes, theft, forgotten charges and tank leaks right away, not a month or so later.

Often a low unit sale of accessories is the reason for low profits. A modern register will count the number of each kind of a transaction. On multiple-item sales the figures will show the price of each item and the total of all, providing the information the operator needs to compute the unit sale per salesman or for the business as a whole. A small increase in the unit sale may make a big increase in net profit.

The bookwork there is to do in connection with a modern cash register is greatly simplified because the audit-strip gives a permanent record of the day's transactions for transference to the books, each transaction printed in the order in which it occurs. Pay-outs, charge sales and payments on receivables may be recorded by means of special counters or keys or noted on the cash register tape. Where books are kept on a blanket basis, sales lumped, also expenses, the operator lacks many business facts and statistical information of great value to future business management. Breaking down the over-all figures to provide the detailed business information needed for precision control is a cumbersome and costly job with an old fashioned accounting system or register. The modern register provides this information quickly and is therefore an aid to better business management as well as a means of simplifying accounting work.

(Continued on page 118)



When car production
goes **DOWN** repair
business goes **UP!**

You Need Modern Shop
Equipment to Get and Do
the **BIG PROFIT** jobs!

Get it **NOW** . . . pay **LATER**
with **Commercial Credit's**

AEP

...MAKE the most of this profit opportunity that's ahead by installing the equipment you need NOW and paying for it LATER! Ask your jobber about COMMERCIAL CREDIT'S AUTOMOTIVE EQUIPMENT PLAN . . . select your equipment . . . make a small down payment. That's all there is to it. We pay the balance, and you repay us in easy monthly instalments.

Get the details today while shop equipment is still available . . . *you'll be glad you did!*

*The best equipped shop
gets the profitable business!*

**COMMERCIAL CREDIT
CORPORATION**

A subsidiary of Commercial Credit Company, Baltimore
...Capital and Surplus over \$100,000,000...offices
in principal cities of the United States and Canada.

BUY IT ON TIME!

ASK YOUR
JOBBER ABOUT **AEP**
AUTOMOTIVE EQUIPMENT PLAN

ONE CONTRACT • ONE COST • INSURANCE INCLUDED

Robot Continued from Page 116

One can do all his financial accounting on a modern register. It provides totals for as many accounts as the operator designates, then all he need do is take off these totals, enter them in his books or a simplified record of accounts that may or may not come with a register and he has all the data necessary to prepare a profit and loss

statement monthly and a balance sheet semi-annually. Of course, as with every accounting system, the cash register must fit the business. The keys or counters should be selected to identify the transactions the user requires to do a good bookkeeping job and to give him all the essentials for competent business analysis. In our field

studies, we found that one reason why operators in the automotive field do not get the most out of their cash registers is that the units are not big enough for the work they must do from an accounting standpoint. Too many operators think only of the protective features of a cash register and do not consider its adaptability as an automatic bookkeeper. The modern register supplies protection and also business information. But even if the machine is modern, if it has a limited range of registration, it will not get best results. Be sure that the register is large enough and of sufficient versatility to handle all transactions occurring in your business under normal operating conditions. Remember, however, that it can cover only the financial accounting phase of a business. It will not cost repair jobs. For this work, you need special job costing forms.

If you have an old accounting system, modernize it now. If you have an old cash register, replace it with a modern unit. Or if your register is modern but inadequate from an accounting standpoint, invest in a machine that will serve you satisfactorily. A modern accounting system and an old fashioned register won't ring the bell. Neither will a gay nineties set of books and a modern register fill the bill.

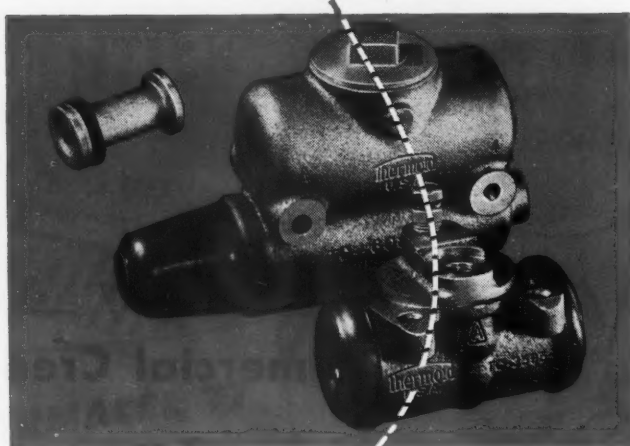
S. R. Robinson Named To Important AAC Post

S. R. Robinson, advertising manager for Grey-Rock Division of Raybestos-Manhattan, Inc., Manheim, Penna., has been made vice-chairman of the committee on industry-wide advertising, an all-important committee of the Automotive Advertisers Council.



Look For The Name

Thermoid



And Get These Advantages

- 1 **Cups** and other rubber parts are made of natural crude, specially compounded for toughness and resistance to wear. Into these parts goes all of Thermoid's specialized experience in the manufacture of rubber products, including fan belts and hose—as well as conveyor belting, transmission belting and many other industrial rubber products.
- 2 **Castings** of special analysis gray iron alloy protect you against flaws which cause breakage of inferior castings, and excessive porosity which results in leakage.
- 3 **Cylinders** honed to a scratch depth of less than 25 millionths of an inch are one more example of the "Precision Processing" that characterizes all Thermoid products.

The Thermoid name on Hydraulic Brake Cylinder Assemblies and Parts is your best protection against comebacks

Thermoid

Thermoid Company • Trenton, New Jersey

the standard of precision processing in brake lining, brake blocks, hydraulic fluid, cylinder assemblies, hydraulic brake parts

This kind of JAM costs you MONEY!



Your "ZERONE"- "ZEREX" supplier has the tools to help you beat this rush

Unless you do something about it *now*, your anti-freeze customers will wait for the first icicle—then they'll stampede into your service island.

You can beat the rush—and make bigger profits on anti-freeze and cooling system service—if you lend an ear to your "Zerone"- "Zerex" supplier. He has a customer appointment book with room to sign up more than \$1,000.00 worth of business *before* the freeze

strikes . . . a hard-working window display that reminds customers they need anti-freeze and cooling system service. And, a protection chart that tells you how to protect all the cars, trucks, tractors, and buses on the road today. It takes the guesswork out of anti-freeze protection, gives you sales and service hints.

Call your supplier today—let him put these free "Zerone"- "Zerex" sales aids to work for you *now*.

Are you getting the most out of your Cooling System Service Manual?

If you are one of the more than 30,000 dealers who have already joined the Du Pont Cooling System Service Program, remember to use your manual as a guide while doing a repair or servicing job, and to establish charges for such service. If you haven't joined up yet—make sure you call your supplier today.

"ZERONE"

Motorists buy more "Zerone" anti-freeze than any other brand. 4 out of 5 cars are prospects in most areas of the country. Get your share of this big market—order this fast-seller now.



"ZEREX"

"Zerex" anti-rust anti-freeze is the new favorite among premium-priced anti-freezes. When you stock "Zerone" and "Zerex," you're in a position to meet the needs of all your customers.

*REG. U. S. PAT. OFF.



REG. U. S. PAT. OFF.

BETTER THINGS FOR BETTER LIVING . . . THROUGH CHEMISTRY

Generators Continued from Page 45

then lay a thin piece of steel along the armature bars, or a hacksaw blade is usable. Rotate the armature in the growler and when moving the blade from slot to slot, if a short circuit exists in one of the coils, the blade will tend to adhere to the armature and vibrate when it is held over the defective coil.

Then the commutator should be checked for grounds with a test light. Check one lead of the test light to the armature coil and the other lead to each bar of the commutator. If the test lamp lights, it indicates a grounded coil or bar and the armature should be discarded. The armature should then be placed in the lathe and the

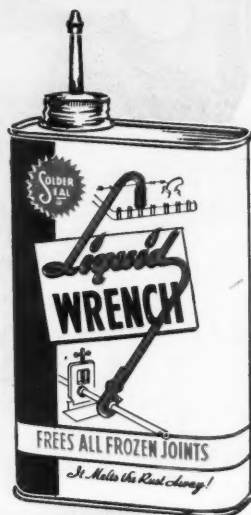
commutator machined to assure a smooth concentric surface for the brushes. Then the mica should be under cut about 1/32nd of an inch.

Field coils very rarely fail in normal service and a continuity test should be made without removing the fields. They can be checked for grounds also in this manner. The continuity test can be made by touching one test point to each end of the field, winding simultaneously. On three brush units disconnect the grounded end of the field to make a test. The lamp should light, indicating that the field winding is not interrupted or broken. The test for grounds is done in a similar manner. Touch one test point to either end of the field winding, the other test point to the frame. The lamp should not light. If the field coils pass both these tests, but the generator fails to function properly, when assembled, disassemble the generator, and remove the field coils to determine the field current draw. If the current draw is excessive, that means some of the turns are shorted; if the current is low, it would indicate high resistance or partially burned conductors and then the field windings should be replaced. Field coils should be retaped with a good grade of linen tape and the tape should be impregnated with insulating varnish and reassembled to the main frame. The brush spring tension should also be checked by using a pull scale and the brush holders should be checked for grounds. A test lamp should light when a grounded brush holder is tested. It should not light when testing the insulated brush holder.

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Howard Zink

World's largest manufacturer of auto seat covers

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Clearing House Continued from Page 53

transmissions from '41 to '48 which fail to start at times unless the wire which is connected to the distributor or coil is disconnected. This wire comes from the solenoid unit and I don't know whether the trouble is in the relay governor or just where. Also, on these same cars, why does the magnetic switch work on the carburetor that the

motor slows gradually? When does the magnetic switch work and why won't the dash pot plunger work as well without it? **Submitted by:** Gene Shermeister, Shermeister's Garage, 1410 Penn Avenue, Sheboygan, Wis.

We Suggest:

On Chrysler cars equipped with

automatic transmissions, usually when the engine fails to start and you have to disconnect the wire connected to the distributor, the trouble lies in the interrupter switch. When the trouble occurs, replace the interrupter switch. This switch can be tested by attaching one voltmeter lead to the ground and the other lead to the primary circuit on the interrupter switch. With the voltmeter connected in this manner, the ground is established for test purposes. With the ignition switch on, the voltmeter will show a line voltage of six to eight volts. Start the engine and, by revving the engine to about 1100 rpm, the stem on the vacuum unit will latch. As the stem moves in, there is a momentary interruption on the primary ignition circuit and the voltmeter needle will flicker. This indicates the switch is operating properly. On cars equipped with magnetic switches, the electrical control is energized by the wire from the solenoid terminal of the kick-down relay and the other wire from this terminal leads to the solenoid on the transmission case. The wire is hot, up to 18 mph on '41 models and '42 models. It is 14 mph on '46 and '47 Chrysler and De Soto models.

When the current is on, the magnetic switch traps a ball at the bottom which traps the gasoline underneath the dash pot and then as the current is released the dash pot slowly releases, thus letting the throttle close. If the magnetic switch weren't there, you wouldn't have any resistance and it would close immediately, causing the engine to stall.

(Continued on page 124)

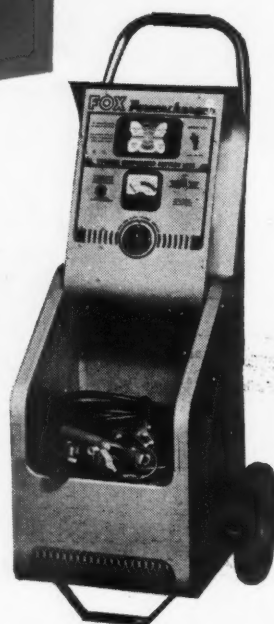


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Jobber's Now



Clearing House Continued from Page 122

Persistent Vibration Hard to Find in This Frazer

We're having trouble with a 1949 Frazer which has a vibration.

What We Did:

First we installed a new rear drive shaft. That changed the vibration point. It vibrates in low

gear at 15 mph, second gear at 20 mph, high gear at 30 mph. The same vibrating appears when coasting at 35 mph. We checked the flywheel for looseness; double checked the three U-joints for the correct amount of parts and spacing of the cross pins. It seems that in low gear or overdrive it doesn't vibrate when the car is jacked up.

The tires were checked for balance and they were O.K. Submitted by: Ruben Berg, Berg Auto Company, 746 Selby Avenue, St. Paul, Minn.

We Suggest:

On your 1949 Frazer this vibration is probably coming from the engine being off center with the driveshaft. Loosen the motor mounts and run the car around the block so that it centers itself. Then re-tighten the mounts. Check this job for vibrating while the car is standing still. If the vibration is still noticeable when using part throttle, then the trouble could be coming from an unbalanced condition at the flywheel or probably the fan blades. Also check the rear shackle bolt to make sure they are tight and the springs haven't shifted.

Chevrolet Leaks Oil From Rear Main Bearing

How can we stop an oil leak at the rear main bearing on a 1938 Chevrolet engine?

What We Did:

The motor was completely rebuilt and new rings, pistons and pins were installed. The crankshaft was turned. Submitted by: John W. Johnston, Johnston's Garage, Wan, Va.

We Suggest:

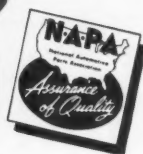
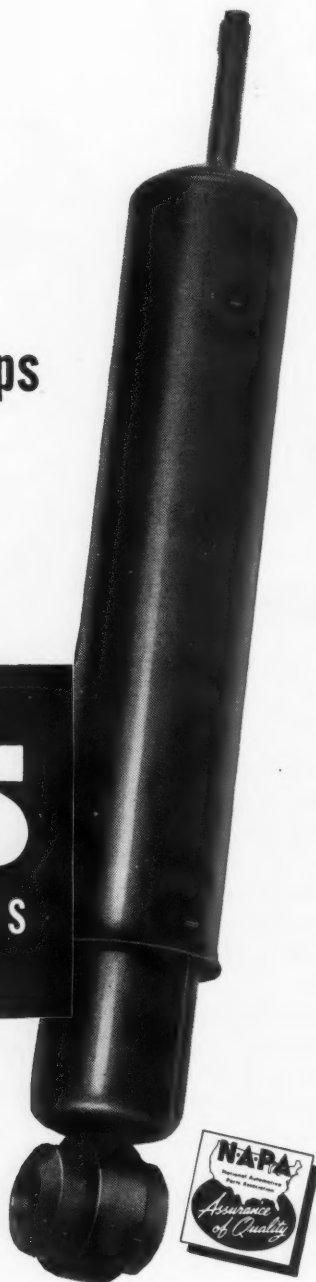
Make sure the leak is at the rear main bearing and not from the valve covers. Also check the
(Continued on page 126)

**53% extra recoil
capacity soaks up
the bumps and jumps
—cushions the ride
--protects the car!**

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New Britain WRENCHES

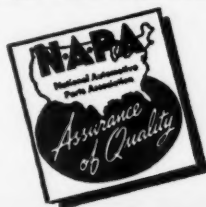
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New Britain

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Clearing House Continued from Page 124

breather system and see that it is operating correctly. Remove the rear main bearing cap and make sure the ball is free in the main bearing cap.

Buick Is Leaking Grease From Rear to Transmission

A 1946 Buick Super which we service has differential grease

flowing to the transmission, resulting in grease leaking from the transmission to the clutch assembly.

What We Did:

We replaced the seals and gaskets. Still the leak persisted. The transmission must be drained to the proper level every thousand

miles and the differential thus takes two pounds of hypoid. Submitted by: Curtis Greene, Central Motors, 9 North Water Street, Frostburg, Md.

We Suggest:

Buick Motor Co. has developed a new grease seal which combines with the rear pinion bearing lock nut. To make this replacement, it entails removing the drive shaft and fitting the seal to the housing. The Buick Motor Co. has a bulletin on installing this seal, the number being BPS 2-267.

Miss in Cadillac At Half Throttle

We have a 1950 Cadillac with a miss in the engine when driving at half throttle. Sometimes at 50 mph; other times at 60 mph, 70 or 80 mph. The car has 15,000 miles on it.

What We Did:

We installed a new set of spark plugs and it seemed to run some better. Then we put in a new coil, and overhauled the distributor. Checked the compression and found it O.K. A valve job was supposed to have been done at 10,000 miles. Submitted by: Oran Johnston, P.O. Box 175, Hughson, California.

We Suggest:

Since the car runs better after installing new spark plugs, the
(Continued on page 134)



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YOU CAN DEPEND ON!**



The reconditioned or rebabbitted rods supplied by your Federal-Mogul jobber are processed by the best facilities in the industry. No waiting, no question that it's the right number. You get what you want—and you get it from stock—at your Federal-Mogul jobber's!

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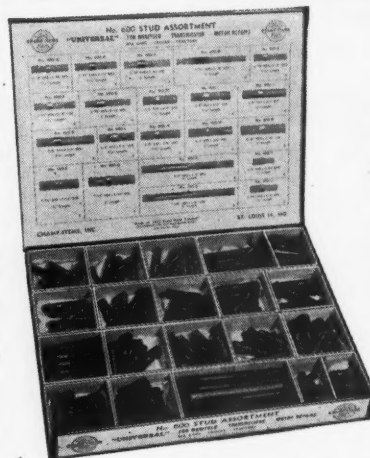
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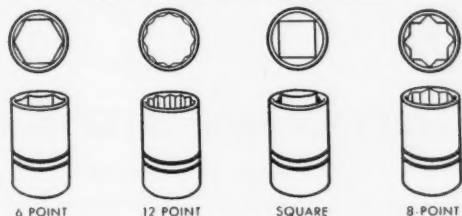
AUTOMOBILE JACKS • AUTOMOTIVE GRINDING WHEELS • ONE-END LIFTS • MERCURY CLUTCHES

Memo to mechanics

How to do it right with WILLIAMS "SUPERSOCKETS"

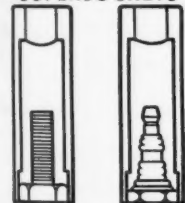
• Williams "Supersockets" present the world's most flexible wrench system. Engineered flexibility permits endless combinations of sockets, handles and accessories to solve any conceivable nut turning problem. With this versatile wrench system you can create wrenches for special applications, from delicate mechanical work to the toughest big jobs.

REGULAR "SUPERSOCKETS"



All "Supersockets", when used with Williams Reversible Ratchets, permit complete rotation of nuts where swing is limited to only 15°. 6-Point Sockets are best suited for nuts having rounded or worn corners and for breaking loose extremely tight nuts. Square and 8-Point sockets are primarily used for turning square nuts.

EXTRA DEEP "SUPERSOCKETS"



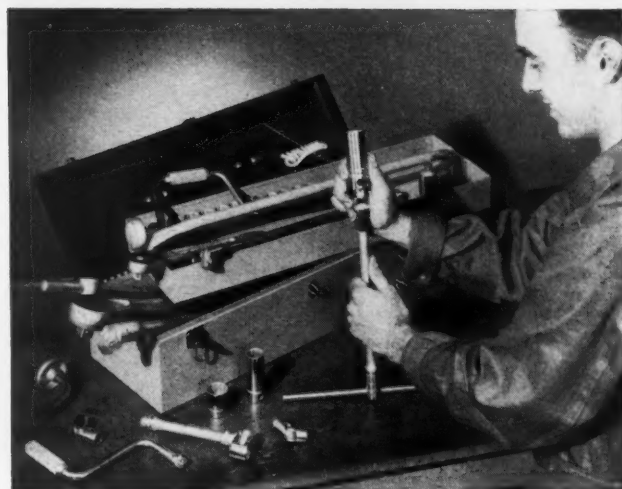
UNIVERSAL "SUPERSOCKETS"



CROWFOOT ATTACHMENTS

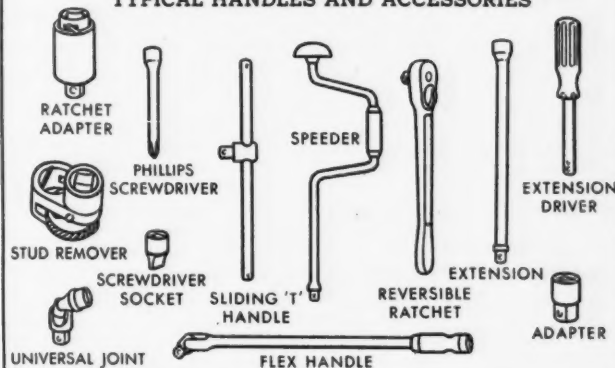


Extra Deep "Supersockets" are recommended where bolts extend more than the normal distance from the nut and for inserting and removing spark plugs. They minimize danger of injury to the mechanic and damage to equipment or tools. Universal "Supersockets" are often used with long extensions for reaching nuts obstructed by mechanical design where rotation of the nut would otherwise be extremely difficult. They have an operating range of approximately 130°.



Crowfoot Attachments can be adapted to a wide selection of handles for turning nuts in "over-and-under" locations difficult to reach by any other means.

TYPICAL HANDLES AND ACCESSORIES



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Chilton's MOTOR AGE, August, 1951



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39 companies . . . total employees	487,347*
Employees on plan before canvass	81,481
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% of participation before canvass	16.8%
% of participation after canvass	67.7%
New savers added to plan	248,461

Based on National averages, employees in this group of companies are saving more than \$7,000,000 every month in United States Defense Bonds.

*Includes 62,070 employees of six companies which did not have plan before canvass.

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YOU NEED CHANNELLOCK PLIERS

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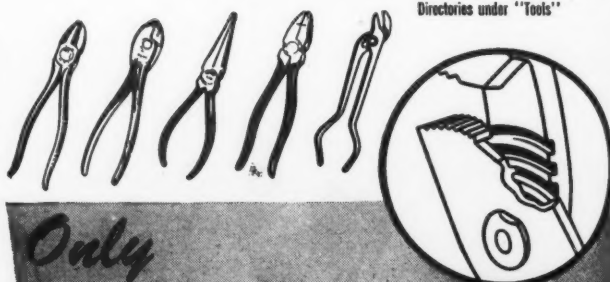
Channellock pliers are Versatile. No matter what your repair job is you'll find some use for pliers—And where pliers are used, You'll Need Channellock.

Look at the features; Longer Wearing, No Wear On the Joint Bolt Closely Spaced Adjustments, Self Cleaning, Greater Strength—You'll see why every mechanic needs Channellock pliers. Channellock pliers are versatile.

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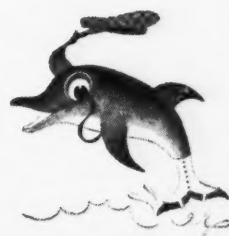
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You can stretch out more
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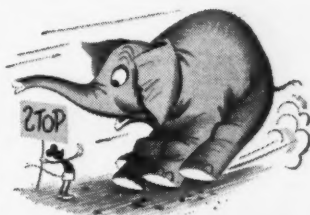
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Chilton's MOTOR AGE, August, 1951

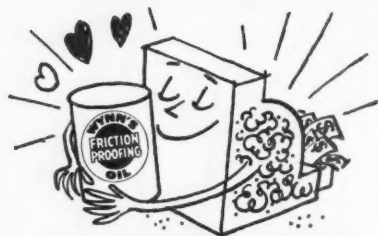
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P.S. Clear an extra
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**Wynn's Friction
Proofing Oil • Azusa, Calif.**

Clearing House

Continued from Page 126

trouble might be due to too much oil getting down the valve stems. Cadillac changed the style of the exhaust valve spring seats. They are now $\frac{1}{8}$ inch shorter at the lower end. The new set can be identified by a circular groove on its top, concentric with the valve stem bore. This new seat reduces the amount of oil reaching the valve stems which cause the valves to stick from carbon build-up. Remove the heads and do a valve job. Check the valve guides for wear and install better valve seals and caps.

Clicking Noise in Oldsmobile Shaft

We have had several customers complain of a clicking noise in the propeller shaft on 1946 Oldsmobiles.

What We Did:

We removed the propeller shaft and disassembled the joints. We didn't find any wear. Then we packed them with grease and re-assembled them. The noise is still there and it gives a click when you back up or go forward. Submitted by: Dan's Garage, Roslyn, Pa.

We Suggest:

I'm pretty sure you will find this noise at the point where the companion flange is attached to the pinion flange. I would suggest removing the flange and coat-



ing the splines with white lead. Then install the flange in a new position so that the different splines are engaged. Of course, to do this the flange and the pinion should be marked before disassembling it.

MORE MONEY

for you and your mechanics

Mechanics are faster on their feet than on their backs. Time studies show that with Globe Hoists every mechanic can do 10 hours' work in 8 hours.

Figure that in terms of the extra jobs you can turn out every day. You will see why Globe Hoists quickly pay for themselves, and earn extra money for you and your mechanics.

(Write for illustrated bulletin MA-315)

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(Factories at Des Moines, Iowa and Phila., Pa.)

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Micronic OIL FILTER

with the NEW
**DIRT CHECK
WINDOWS**

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for this **BONNEY
TIE CLASP**



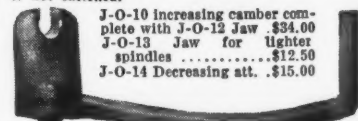
A miniature Bonney Wrench made into a smart tie clasp. A perfect little beauty. Looks like silver. You'll want one to wear yourself—or as costume jewelry for your wife or best girl.
BONNEY FORGE & TOOL WORKS.



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CAMBER TOOL—FITS
ALL CARS—NEW OR OLD

Mfg. under patent rights. Money back guarantee if not satisfied.

J-O-10 increasing camber complete with J-O-12 Jaw \$34.00
J-O-13 Jaw for lighter spindles \$12.50
J-O-14 Decreasing att. . \$15.00



CASTER SHIMS—5 degrees or thickness
AXLE SHIMS— $\frac{1}{4}$ to 4" in all degrees
COIL SPRING SPACERS—top or bottom, contour or flat, for all cars

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and at profitable prices...**



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SUPER PYRO

—the POPULAR-PRICED anti-freeze! For years one of the fastest and biggest sellers! Super-safe: no freeze-ups—no rust—no odor! Economical! The standard of excellence in its class!

BACKED BY THE BIGGEST AD CAMPAIGN IN U.S.I. HISTORY!



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Radio! Super Pyro's sensational talking-auto-horn radio spots—day in, day out, week in, week out—all through your peak selling season!

**YOU CAN
RELY ON U.S.I.**

- **for top profits!**—none higher! Standard-priced so you've got to make money!
- **for top acceptance!** Pre-sold by heavy national advertising and U.S.I.'s reputation!
- **for top quality!** U.S.I. has been making fine anti-freezes since 1915! Don't risk your reputation with makeshift products!

U. S. INDUSTRIAL CHEMICALS, INC.

THAT'S WHAT YOUR U.S.I. FRANCHISE MEANS! Get your order in now!



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Universal Reamer does the work of five ordinary reamers! Its greater expansion range saves you money. Model 85 AS Dual Spiral Expansion Reamer plus 3 extra sets of blades fits piston pins and king bolts in 34 makes of cars and trucks. Chrome steel blades can be resharpened several times. Mandrel is in 100% contact against the entire length of blade, at every expansion range. No flexing or springing—no bell mouthing. Exclusive dual spiral action cuts and burnishes in single operation. Write for Reamer Bulletin, Lemco Products, Inc., 5490 Dunham Road, Bedford, Ohio.

Lemco Invest in
LEMPCO EQUIPMENT
... It pays its own way

THIS COMPLETES SOUTHERN'S MOLDED LINING FAMILY

ANY TYPE, FOLKS, WE SURE HAVE IT NOW!

BRAKE BLOCK
FIBER BLOCK
MESH MOLDED
EXTRUDED MOLDED

SOUTHERN
FRICTION MATERIALS CO. CHARLOTTE I. N.C.
THE SOUTH'S ONLY MOLDED BRAKE LINING MANUFACTURER

"Station Wagon Sweepstakes" Raises Willys Sales

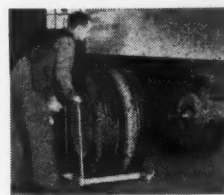
According to Howard P. Grove, Willys-Overland general sales manager, the nation-wide "Station Wagon Sweepstake" currently being run by that company has raised station wagon sales 133 per cent over the previous ten day period. Sales for the month of May finished 12 per cent above the April sales, he also stated. Sizable bonuses are offered salesmen in various classifications.

GM Buys Arizona Site For Proving Ground

GM has doubled its proving ground facilities through purchase of a 2280-acre site near Phoenix, Arizona, for a hot weather test area. The Arizona proving ground will be used for testing car, trucks, and buses, and development testing of military vehicles, including tanks. Initial construction will include a five mile circular banked tract, and two mile level straightaway. It will be used for controlled tests such as heat rejection, oil and fuel economy, performance, durability, and brake deceleration. Additional roads may be added whenever required. GM has tested vehicles in Arizona since 1937, when it established its Phoenix laboratory as a branch operation. The new proving ground makes possible prolonged tests of high speed operations under controlled conditions, without interference from other traffic.



NEW DUAL WHEEL DOLLY



Dual Wheels replaced, removed quickly—easily.

IMMEDIATE DELIVERY

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One Man Operation

No Strain — No Lifting — No Greased Floor — No Adjusting. See your Jobber or write us.

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Dept. E Huthore, Pa.



ASK YOUR JOBBER
for Fel-Pro

COMPLETE GASKET SETS

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Genuine SERVICE
INDIANAPOLIS
"Measurably Better"
SPRINGS

SERVICE SPRING COMPANY

INDIANAPOLIS 6, INDIANA

Whiz Met-L-it
GIVES GUARANTEED PERMANENT ADHESION
—MAKES FIRST-CLASS AUTOBODY REPAIRS

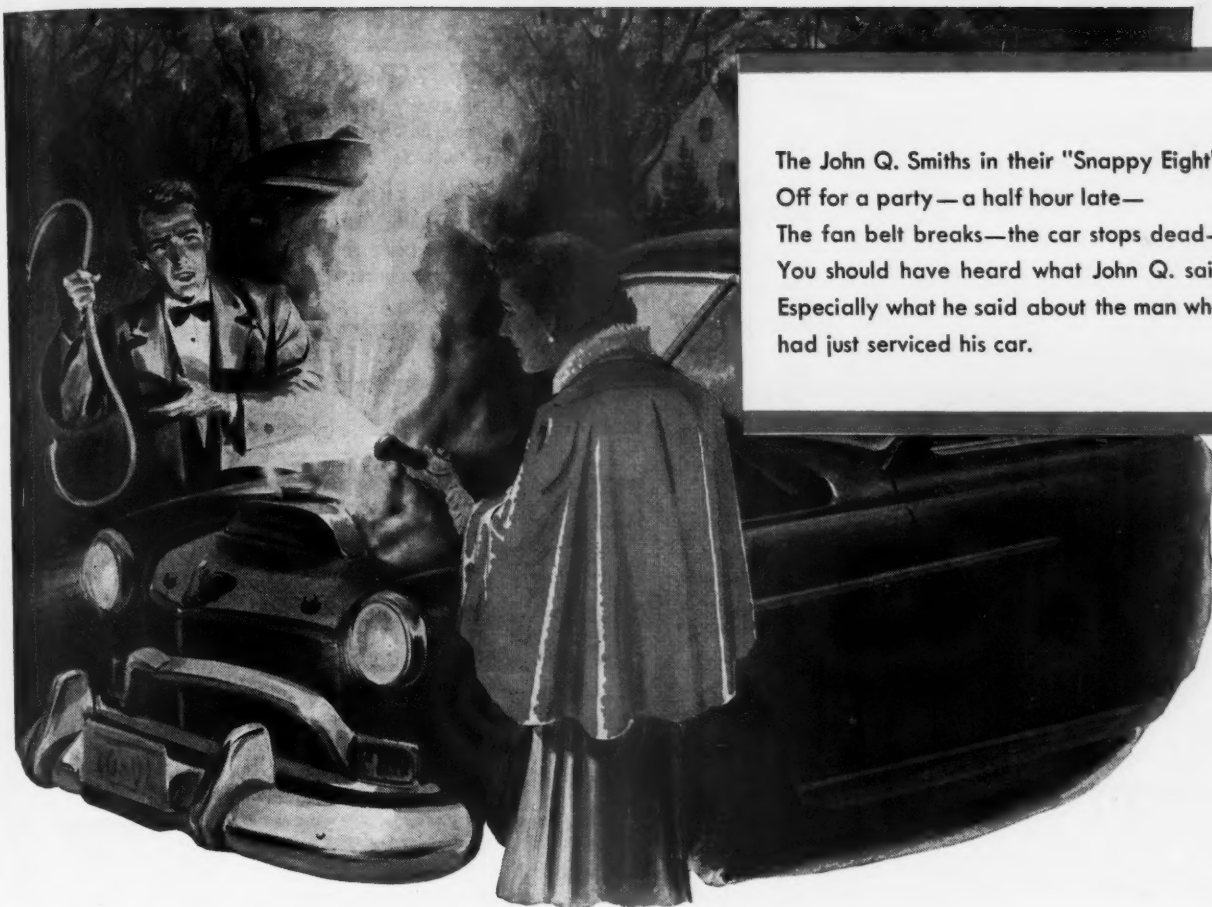
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HAVE YOU A JOB FOR A TRAINED MECHANIC?

We have a number of alert young men who have completed intensive training in Automotive Mechanics, Automatic Transmissions and Body-Fender Rebuilding. They learned their trades thoroughly by working on actual equipment under personal, expert supervision. If you need a trained man, we invite you to write for an outline of our course, and for a prospectus of the graduate. No fees, of course. Address:

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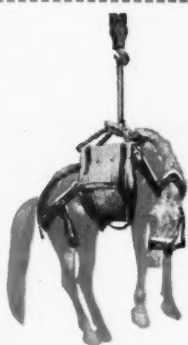
COMMERCIAL TRADES INSTITUTE
1400 GREENLEAF CHICAGO 26



The John Q. Smiths in their "Snappy Eight"
Off for a party—a half hour late—
The fan belt breaks—the car stops dead—
You should have heard what John Q. said—
Especially what he said about the man who
had just serviced his car.

Was This The Car You Serviced?

...or do you always replace the fan belt before it fails?



Everything hangs on the fan belt, cooling, ignition, lighting systems. A sure fire way to lose a customer's good will—and lose the customer, too—is to let a broken fan belt leave him stranded on the road.

To postpone replacing the fan belt is simply laying up trouble for the customer and yourself.

Make your replacements with Thermoid Fan Belts. As you know, inferior belts soon stretch, lose their grip, wear out quickly. But Thermoid Fan Belts are "a horse of a different

color." Thermoid Fan Belts come to you *pre-stretched* for a longer life of more dependable service.

Thermoid Company • Trenton, New Jersey

Tell Your Customers These Facts About Fan Belts

A fan belt takes an awful beating from oil, grease, engine heat and just plain wear.

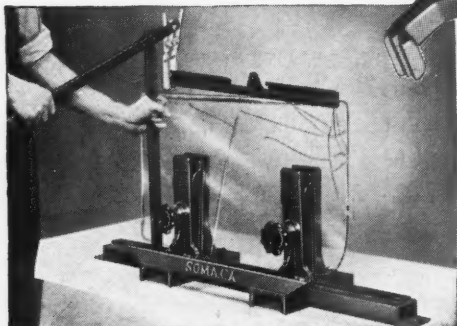
Automotive engineers advise playing safe by replacing fan belts every two years, or every 20,000 miles.



Thermoid

Brake Linings • Fan Belts • Radiator Hose • Hydraulic Brake Parts and Fluid • Car Mats • Clutch Facings • Thermoid Precision Process Equipment

Auto Glass Handling Made Easy



for
**MORE
PROFIT**

with
**LESS
BREAKAGE**

at
**GREATER
SPEED**

No. 50 W "NO-KRAK" Self-Aligning GLASS VISE with Channel Remover and No. 57 Channel Driver. Vise holds auto glass upright in a rubber cushioned grip. Adjustable channel removing tool pulls all channels from glass quickly, without further breakage. Channel driver will properly drive channel on glass without damage to channel flange or glass. Anvil on base for straightening channels. Will take the headaches out of glass salvage. Auto Glass installing is profitable with these tools.

Order Today **\$39.75** Complete

SOMMER & MACA Glass Machinery Co.

Automotive Department

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MANUAL CHOKE CONVERSION KITS

have the
**Spring Loaded
Device**

U.S. and Canadian
Patents Pending



- Our patented spring loaded device assures proper carburetor mixture, giving quicker, easier starting.
- Installs without removing carburetor. Fully guaranteed.

- Also Mfrs. of Complete Line of Universal Hood and Choke Controls.

**Superior Screw
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1924 N. Leamington Chicago 39



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PARTS**
are
Certified to excel

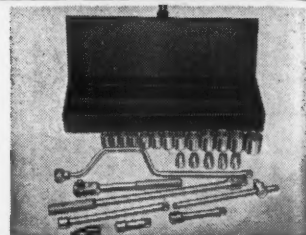


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HARVEY, ILLINOIS

TOOLS AT WHOLESALE

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Full line of top quality, fully guaranteed, chrome, factory-new mechanics hand tools. You save **HALF REGULAR PRICE** for tools of this quality. Our Permanent Price Protection Plan guarantees you wholesale prices.



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Automotive
HOSE CLAMPS



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The Standard
of the Industry
For Leakproof
Hose Connections.

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N.O.C.-OUT



MOTOR AGE

—is a publication keyed directly to the needs of the automotive after-market. Built on the requirements of car dealers and repair shops. Edited by Frank P. Tighe. Read it every month.



A Chilton Publication

CHESTNUT AND 56TH STS.
PHILADELPHIA 39, PA.

Classified Advertisement

COIL-CONDENSER TESTERS; closeout, Reg. \$42.50. Now \$12.95, moneyback guarantee. Also Battery Tester, with meter, closeout \$4.95. Model Electric Prod., Asbury Pk., N. J.

Holds Tight in any position

Avoid leaky joints — an "Aero-Seal" Hose Clamp holds tight in any position. Vibration proof. Curved saddle prevents distortion of hose, assures uniform sealing pressure around complete circumference. Stainless steel—corrosion resistant. Hardened steel worm drive unscrews easily but will never shake loose. Send for FREE SAMPLE.

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Worm Drive
Never Works Loose



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BREEZE
MARK
PRODUCT

"JOURNALIZE"



ALL of the crankpins can be trued with Journalizers on any make car or truck without removing the crankshaft, cylinder head, knee action, axle, steering, oil lines, counterweights or engine supports. Simply remove the oil pan and spark plugs, install Journalizer in place of engine bearing and the starter motor does the work. Tool is supplied with coarse and fine replaceable inserts for rough cutting and polishing.



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No special skill is required to HONE journals to a smooth round finish to give lasting bearing performance.



Journalizer will true No. 1 Journal on ALL engines. Five sizes service passenger cars and most trucks (except Ford V-8)

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Specify engine and model when ordering

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for modern body finishing

**FASTER
PRODUCTION**

**BETTER
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**GREATER
PROFITS**



JIFFY MASKER

Masks an entire car in seconds •
Eliminates overspray with synthetics
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Write for detailed
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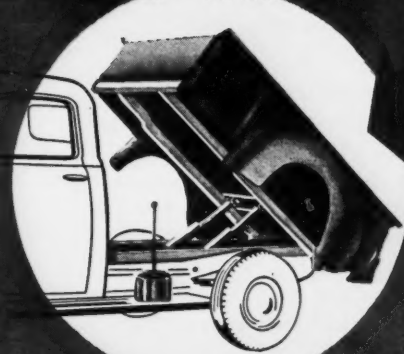


PRUDEN TOOL CO., inc.

310 West 68th St. • New York 23, N. Y.
SUquehanna 7-7055

SOLD THROUGH JOBBERS ONLY

FROM A PICK-UP WITH FEW USES
to a DUMP with 101 uses



CONVERTO hydraulic picUPac

With the picUPac any ordinary pick-up truck becomes a versatile unit of 101 uses—a combination hauling and dumping vehicle with a lifting capacity of up to 6,000 pounds. No power take-off is required, and the general appearance of the truck remains unchanged. The picUPac is rugged, engineered to "take it" under the toughest of fast dumping jobs. It comes equipped with either the manually-operated or electrically-driven, cab controlled Blackhawk pump.

Make the quickly installed Converto available to your customers now, so that they may earn extra payload profits. Ask your distributor for complete information.

Converto

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Somebody's Cash Register Will Ring Up These Sales!

Soon as snow starts falling people start calling for WEED CHAINS

YOU can start ringing up these profitable sales long before it snows, by offering **WEED AMERICAN V Bar-Reinforced TIRE CHAINS**. Especially to owners of late model cars who want to protect that new look.

People have learned from experience there's no substitute for chains when they need trac-

tion. And safety experts choose **WEED AMERICAN V BAR-REINFORCED CHAINS** for use on their own personal automobiles.

There's a good dealer profit in **WEED CHAINS**. To be sure of your share, tell your wholesaler today to stock you up. **WEED AMERICANS** may be scarce before snowfall.



Remind your customers to bring in their used tire chains for cleaning, examination and any necessary repairs.



Show V BAR-REINFORCED WEED AMERICANS to your chain customers. Urge them to be sure of traction when they need it.



Putting on tire chains is a sure way to increase wintertime traffic around your cash register.

BRAKING DISTANCES AT 20 M.P.H. ON GLARE ICE	21 ft. on DRY CONCRETE
 77 ft. with Reinforced Tire Chains
	Conventional Tires 209 ft.
	Winterized Tires 188 ft.
	Mud-Snow Tires 201 ft.

Above figures from National Safety Council. In pulling power tests on hard-packed snow, conventional natural rubber tires registered 301 lbs., winterized 268 lbs., mud-snow 374 lbs., and reinforced tire chains 1120 lbs.

Other data showed that synthetic rubber tires skid or spin from 10 to 50 per cent more than natural rubber. Tire chains overcome this additional hazard.

ACCO

York, Pa., Atlanta, Chicago, Denver, Detroit, Los Angeles, New York, Philadelphia, Pittsburgh, Portland, San Francisco, Bridgeport, Conn.



**WEED
TIRE CHAINS**

**AMERICAN CHAIN DIVISION
AMERICAN CHAIN & CABLE**

In Business for Your Safety

Chilton's MOTOR AGE, August, 1951

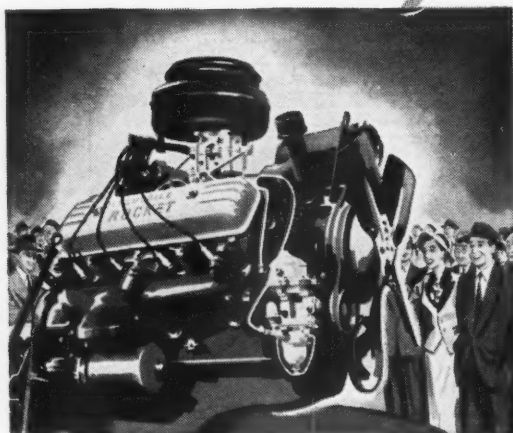
"ROCKET" POWER IS SELLING POWER!

SUPER "88"



PRODUCT OF GENERAL MOTORS

And Rocketing Demand keeps Oldsmobile Dealers in Enviably Competitive Position



It's easy to see why the "Rocket" is easy to sell! For Oldsmobile's great high-compression engine has everything—power, economy, smoothness and a record for durability that's unchallenged by any high-compression competitor! Over three-quarters of a million enthusiastic "Rocket" owners stand as proof that "Rocket" power is "Selling" power! That's why Oldsmobile dealers everywhere are in a top trading position today! That's why Oldsmobile dealers are convinced . . . It's *SMART* to *BE* with *OLDS!*

"ROCKET" OLDSMOBILE

Quick Seating

... that overcomes cylinder wall glaze, too!



ALL 4 MAJOR WALL CONTACTS
are of SAFE, QUICK SEATING
specially processed CAST-IRON

Ramco's Double-Life Principle *insures quick seating that is*
kind to cylinder walls and **ACTUALLY CURBS WEAR**



RAMCO RE-POWERING*
Program Helps You to
Help America Fight
Premature Engine Wear

Use the Ramco RE-POWERING
Program to show customers
that oil pumping is a warning
sign which, if unheeded, will
result in Premature Engine Wear.
Sign up for the RE-POWERING
Station Sign. Get the help of
this nationally advertised
program to sell more piston rings,
Carburetion, Ignition, and Cooling services.
See your Ramco Jobber Today.

*Nationally Advertised in

POST

Fuller

POST

QUICK SEATING is one important reason why reports of 40,000 miles and up are commonplace with Ramco 10-Up Rings. It is a fact that *quick seating* is essential to long ring life. Also important is the removal of cylinder wall glaze, one of the biggest enemies of ring life.

Ramco 10-Up Rings provide this quick seating and glaze removing action through the exclusive Ramco Double-Life Principle. This principle makes possible the use of only gentle *cast-iron* for the major bearing surfaces during the seating period. Nothing can be kinder to cylinder walls than cast-iron. In addition

Ramco Cast-Iron-Rings are specially processed to improve seating action and overcome glaze, too.

This quick safe seating action is one of many reasons why Ramco 10-Up Rings actually curb wear in worn and tapered cylinders. See your Ramco Jobber for all the advantages of Ramco All Purpose 10-Up Rings. Ramsey Corporation, St. Louis, Missouri.

RAMCO 10^{up} all purpose RINGS

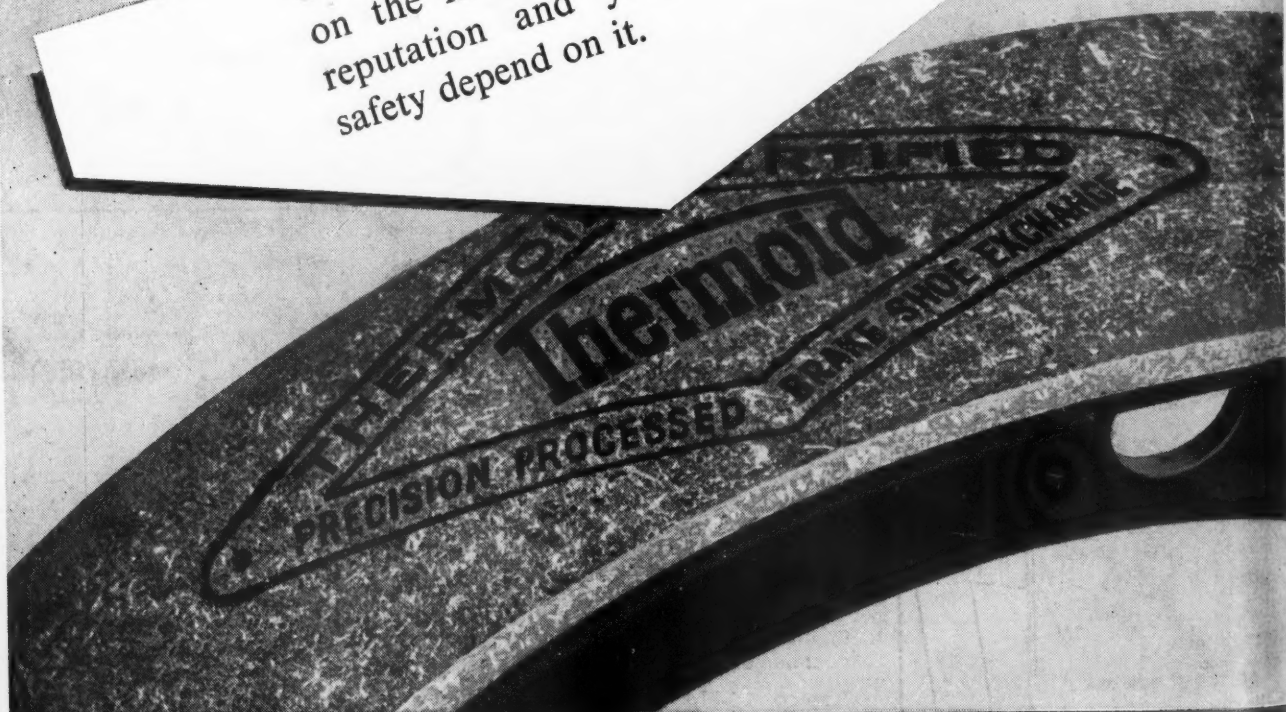
Right for ANY Job

Re-Bore or Re-Ring • Car • Truck • Bus • Tractor

Look for This Stamp of Quality

(Never accept Unbranded Brake Lining)

There are all kinds of brake lining being sold today. Many are little more than "glorified linoleum." When you buy brake lining... look for the Thermoid name and the words Precision Processed, on the lining. Remember! Your reputation and your customers' safety depend on it.



Thermoid

Thermoid Company • Trenton, New Jersey

the standard of precision processing in brake lining, brake blocks, hydraulic fluid, cylinder assemblies, hydraulic brake parts.